

Manufacturers Record

Industry Construction



\$6.50 per Year.
Single Copy, 20 Cents.

Baltimore, Md.
APRIL 17, 1930

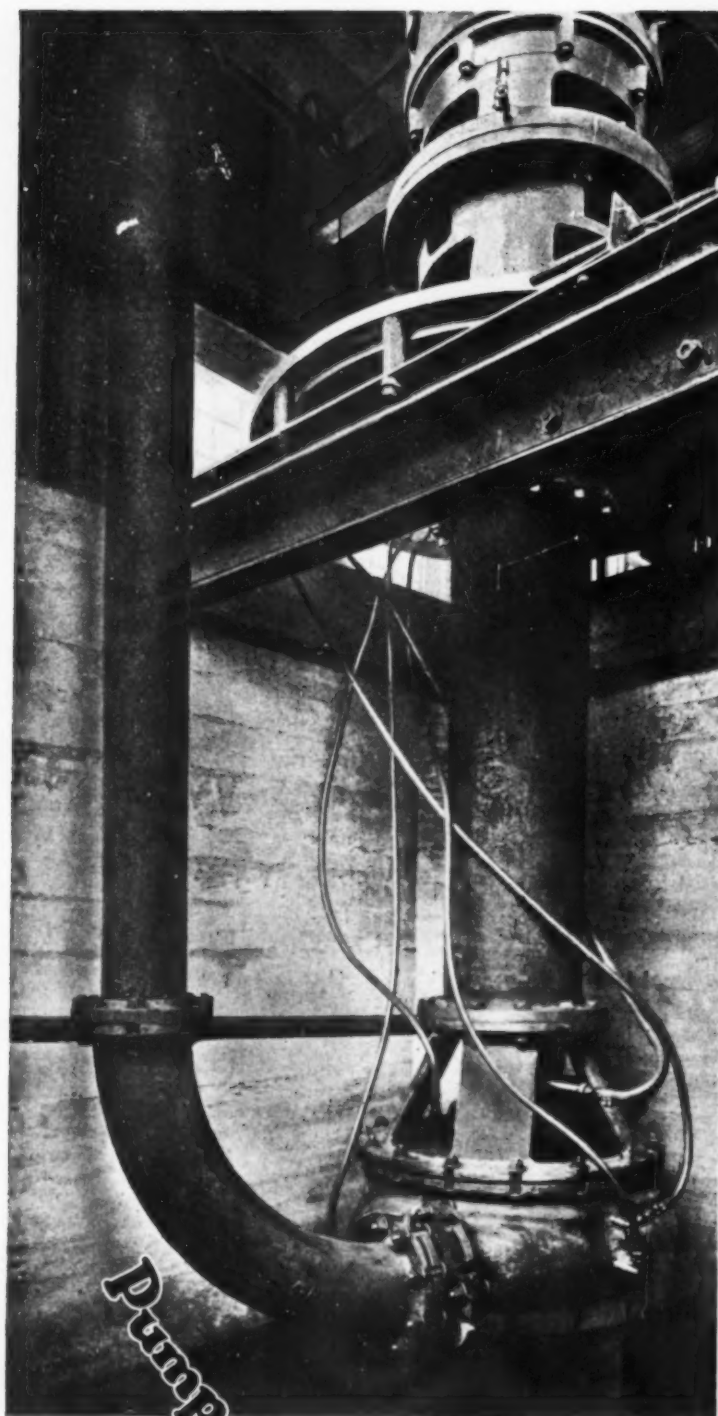
Be Prepared for the Next Great Upward Move of Business

Many people in times of unsettled business are likely to overlook some of the facts that always guarantee, and always will guarantee, a vast expansion of business activity. We are prone to forget that this country, with Europe on one side and Asia on the other, with Canada north of us and South America to the South, has a strategic geographical advantage which no other country on the face of the earth possesses. At the same time, it has a variety and extent of resources not duplicated elsewhere on earth. Populated, as it is, by 122,000,000 of the most active, virile men and women on the face of the earth, with resources so boundless as to stagger the imagination, we can hardly begin to estimate the magnitude of the development that is ahead of us.

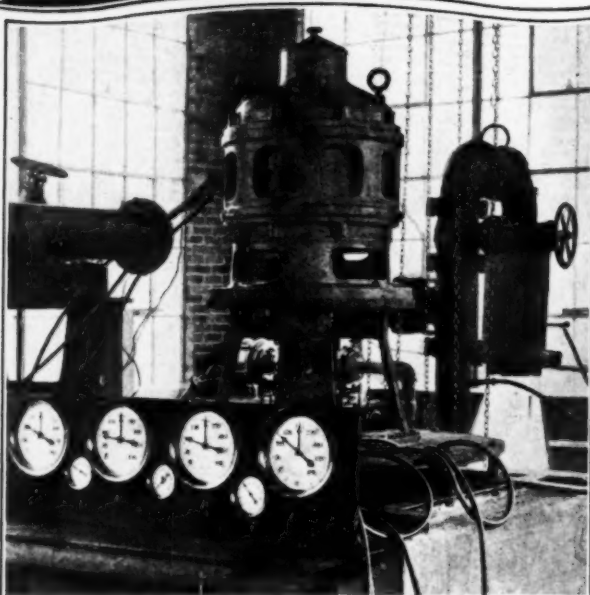
Consider for a moment the facts which we have often published, but which can to advantage be iterated and reiterated, that with only six per cent of the world's population we are producing and consuming at home more than one-half of the basic raw materials. Here are 122,000,000 people with over 75 per cent of the automobiles of the world, and more automobiles this year than the entire world had four years ago; with an output of steel, of iron, of coal, of oil, of natural gas, and of many other wealth-creating resources beyond what all the other countries of the world are producing and consuming.

What an illimitable field is here opened up for study! How vast are the potentialities of the country! How vast will be the development ahead of us! We have but halted for a few moments, as measured in the life of a country, while waiting to catch breath for the next great upward move.

The far-seeing business man looks ahead, and with courage and optimism concentrates his thought upon getting ready to secure his full share of business. In nautical language there is an ebb tide, a flood tide, and slack water. The ebb tide has ceased to run. We have been having slack water for some little time. But now slack water we believe is passing away with the incoming of the flood tide, which is already in evidence here and there.



Pump your Ashes!



A New Pump *for* Handling Ash

The design of this pump is such that ash and similar abrasive substances are handled with unusually high maintained efficiency, while the wear on pump parts is minimized. . . . This pump is primarily a unit of the Hydrojet System, used for pumping ashes from sump to storage bin or fill, but it has many other industrial applications in materials handling. . . . Photographs show pump in test sump at our shops. Every A-S-H Pump carefully tested before shipment. New catalog No. 1229, describing these pumps, on request.

The **ALLEN-SHERMAN-HOFF** Co.
225 SOUTH 15TH STREET - PHILADELPHIA

HYDRO JET

Nothing Moves but the Ashes

Entered as second-class matter at the Postoffice, Baltimore, Md., under the act of March 3, 1879.

A SECOND DELUGE COULDN'T PENETRATE THIS WATERPROOFING

How Hydrocide Colorless Waterproofing, A Sonneborn Product,
Protects Buildings Against the Weather
and Costly Upkeep

IF a second flood were to sweep the land, the buildings treated with Hydrocide would emerge from the disaster moisture-tight and dry. Brick, stone and concrete surfaced with it defy the elements and time itself.

Hydrocide penetrates deep into the material, caulks the pores against damp and torrent, will not "run" in the sun—and keeps the contents of the building "bone dry" so far as wall protection is concerned.

Letters from satisfied users await your inspection. Let us send them to you. Mail the attached coupon. We will also send you descriptions and samples of other Sonneborn products that protect buildings inside and out—and protect the bank account at the same time.

Waterproof Your Building With
HYDROCID COLORLESS

But First Seal All Cracks With

KAUKIT

Before you apply Hydrocide Colorless, inspect all window and door frames to see if they are tight, and look at all mortar joints for breaks.

Wherever there is a crack or fissure, caulk it with Kaukit, the elastic caulking and glazing compound that is absolutely weather-proof.

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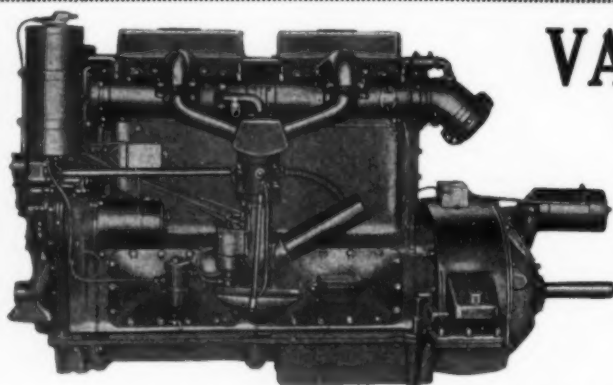
Please send me, without obligation, demonstration samples and literature on: Lapidolith.....; Lignophol.....; Cemcoat.....; Hydrocide Colorless.....
(Check products that interest you.)

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100,000-gallon dual service elevated tank at Mobile, Alabama plant of the Southern States Cable Company, Division of the General Cable Company. The upper 25,000 gallons of the tank capacity provide water for general service while the lower 75,000 gallons are always reserved for the sprinkler system.



Here's the way to provide water for FIRE PROTECTION and GENERAL SERVICE with only one elevated tank

It is unsafe to depend for fire protection on a water supply which you are drawing from for other purposes. The danger lies in the likelihood of a fire starting just when other uses have depleted a large portion of the reserve.

For this reason, fire regulations often require that a certain amount of water be held in reserve at all times for use in connection with fire protection systems. This does not mean, however, that you must build two elevated tanks to provide gravity water pressure for fire protection and general service.

By piping one elevated tank for dual service, you can secure the benefits of gravity pressure

for both uses with only one tank. The general service line extends up into the tank and can draw off only a predetermined amount. The remainder of the tank capacity cannot be drawn out through the general service outlet and is always reserved for the fire protection system, which is connected to the tank riser in the regular way.

The dual service piping arrangement meets with insurance requirements. When considering fire protection to reduce your insurance costs, we will be pleased to submit estimating figures on elevated tanks for your consideration.



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Birmingham, Alabama

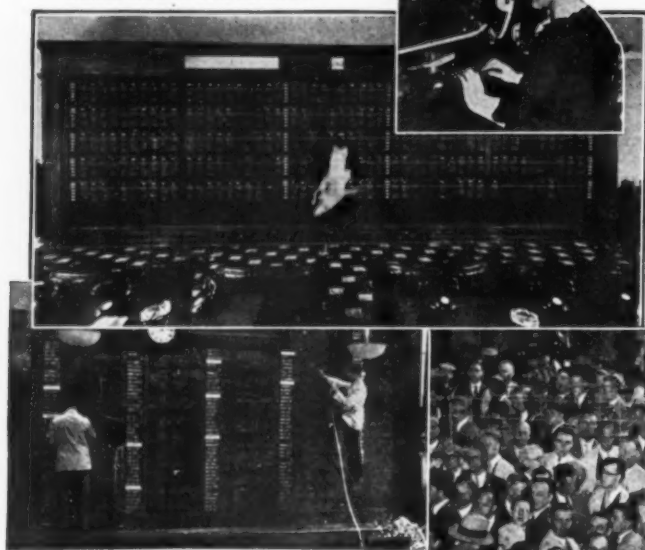
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B-139

HORTON TANKS

She punches a key and the quotation appears simultaneously, in brokers' offices all over the country.

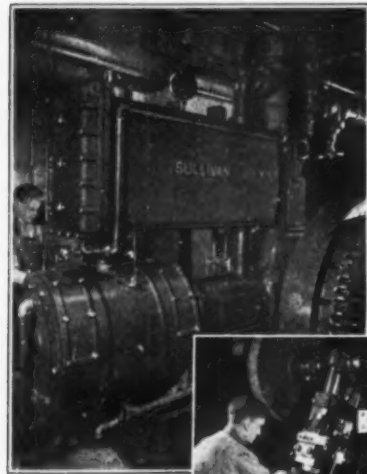


During the recent crash, tickers were an hour behind.

Air Power Hastens Day of High Speed Stock Reports

New Automatic brokers' boards are being turned out rapidly. Soon they will record quotations simultaneously all over the country. One girl at a keyboard will post prices at hundreds of points at once—smashing all precedent in speed and accuracy.

Armatures for the boards are being broached rapidly, in air punches. Numbers are being sprayed on them with air—which will soon spell profit or loss to traders. Coil cores are blown from presses, with air.



The Sullivan Balanced Angle Compressor which supplies low cost air power for building the new automatic quotation boards.

Every production shortcut, and every machine which could cut time and costs on the new boards, has been adopted. And a vital factor is air power by Balanced Angle Compressors—the choice of leaders in every industry.

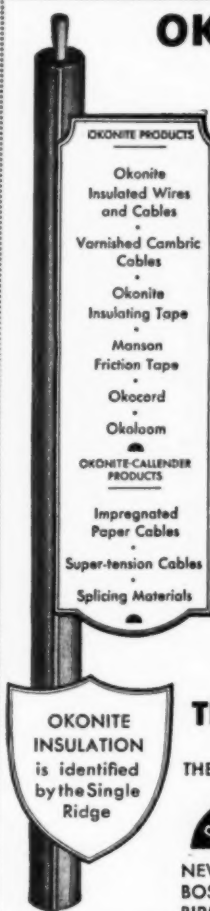
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SULLIVAN

SULLIVAN MACHINERY COMPANY

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OKONITE rubber insulation is made with more than 30%, by weight, of wild Fine Up-River Para rubber, the highest quality of all rubbers obtainable. After being mixed with chemically pure, time-tested fillers, the resulting compound is vulcanized on the wire in a continuous metal mold, making a dense, tough, homogeneous insulation in which the wire is perfectly centered.

This unique process for making OKONITE rubber insulation is employed exclusively by The OKONITE Company, and is responsible for the unequalled durability of OKONITE wires and cables.

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Founded 1878

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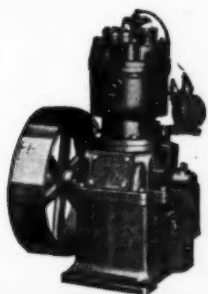
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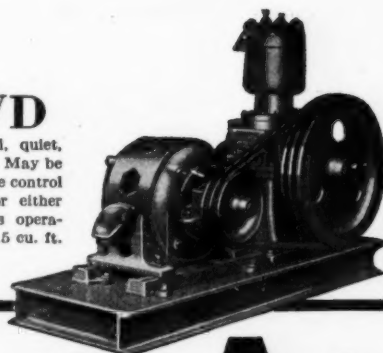


Model W

Water cooled. Four sizes, from 4 x 3 1/4 to 5 1/4 x 5 Duplex. Displacements, from 15 cu. ft. to 128 cu. ft., depending upon size of compressor and horse power of motor. Maximum pressure, 150 lbs. Illustration shows automatic unloader for maintaining uniform pressure under continuous operating conditions.

Model WD

Single stage, water cooled, quiet, with multiple V-Belt drive. May be had with automatic pressure control or automatic unloader for either intermittent or continuous operation. Displacements from 15 cu. ft. to 128 cu. ft.



Compressed Air Flexible-Economical

Manufacturers are rapidly discovering that compressed air is more suitable for many operations, than any other power.

Its flexibility and the ease with which pneumatic tools may be handled, are remarkable. It's versatile, too, doing almost anything, from operating a pneumatic lift to blowing dust or lint from machinery.

While flexibility and versatility are in-

herent properties of compressed air, you must look to Quincy Compressors for the utmost in economy, for the entire Quincy Line is designed and built with economy as the goal — economy in power requirements, in maintenance, in replacements.

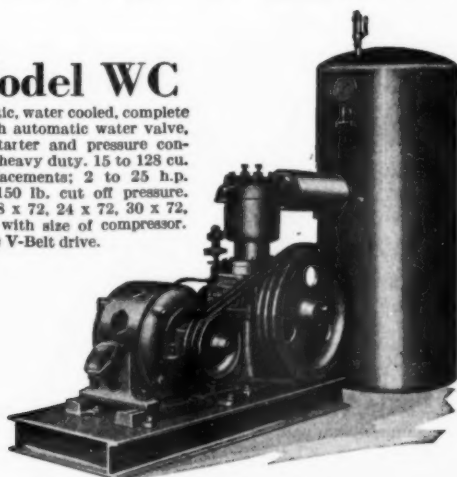
Quincy Compressors are backed by a warrant of complete satisfaction without a time limit.

14 sizes—water cooled and air cooled.

Write for complete information, or use the coupon below.

Model WC

Automatic, water cooled, complete unit with automatic water valve, motor starter and pressure control, for heavy duty, 15 to 128 cu. ft. displacements; 2 to 25 h.p. motor. 150 lb. cut off pressure. Tank, 18 x 72, 24 x 72, 30 x 72, varying with size of compressor. Multiple V-Belt drive.



Quincy Compressor Co.,
216 Maine Street, Quincy, Ill.
Please send complete story of Quincy Compressors as applied to my individual business.

Now use compressed air for.....

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**MACHINE MOULDED PULLEYS
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Couplings, Pillow Blocks, Floor Stands, Collars, etc.

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Cut Spur, Bevel, Herringbone
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All sizes. Every description. Oper-
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"Lee Simplex" Cold Metal Saws.

The Earle Gear & Machine Co.
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GEARS



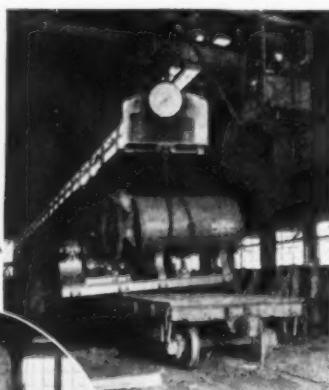
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Established 1884
Crane and Hoist Division
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Kron Crane Scales are giving the greatest satisfaction in the largest organizations in the country. In Steel and Iron Mills and Foundries for weighing pigs, ingots, bars, rails, castings, etc., in production or for use on the crane in the yards. Speed, economy and accuracy are secured and maintained.

Kron Scales are safety factors in weighing.

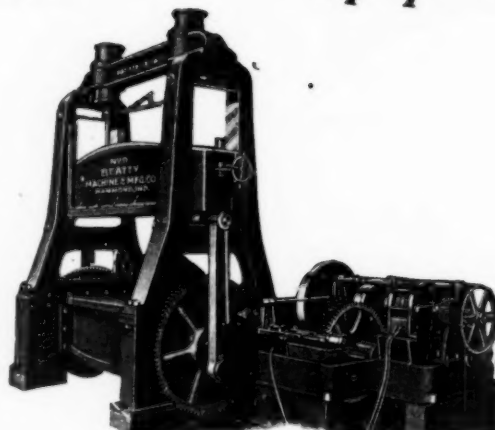


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Write for Booklet
"Scale-ology"

Beatty Equipment



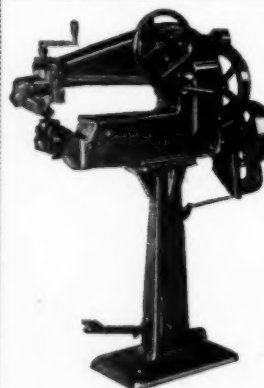
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BEATTY PUNCHES AND SHEARS

Builders of Punches, Single and Double "C" Frame; Horizontal Punches; Multiple Punches; Gate Shears; Splitting Shears; Bar Shears; Angle Shears; Coping Machines; The CoPunShear (Cope Punch Shear); Vertical Bulldozers; Hammond Neverslip Floor Cranes; Spacing Tables.

We have in stock for quick delivery a large list of good rebuilt Punches and Shears. Let us know your requirements.

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S-24 Rotary Shear

Capacity 16 ga. or lighter soft steel. 2 speeds. Cuts on 2" radius or larger. Cuts circles, rings, pattern sheets, segments. Belt or motor drive. Write us.

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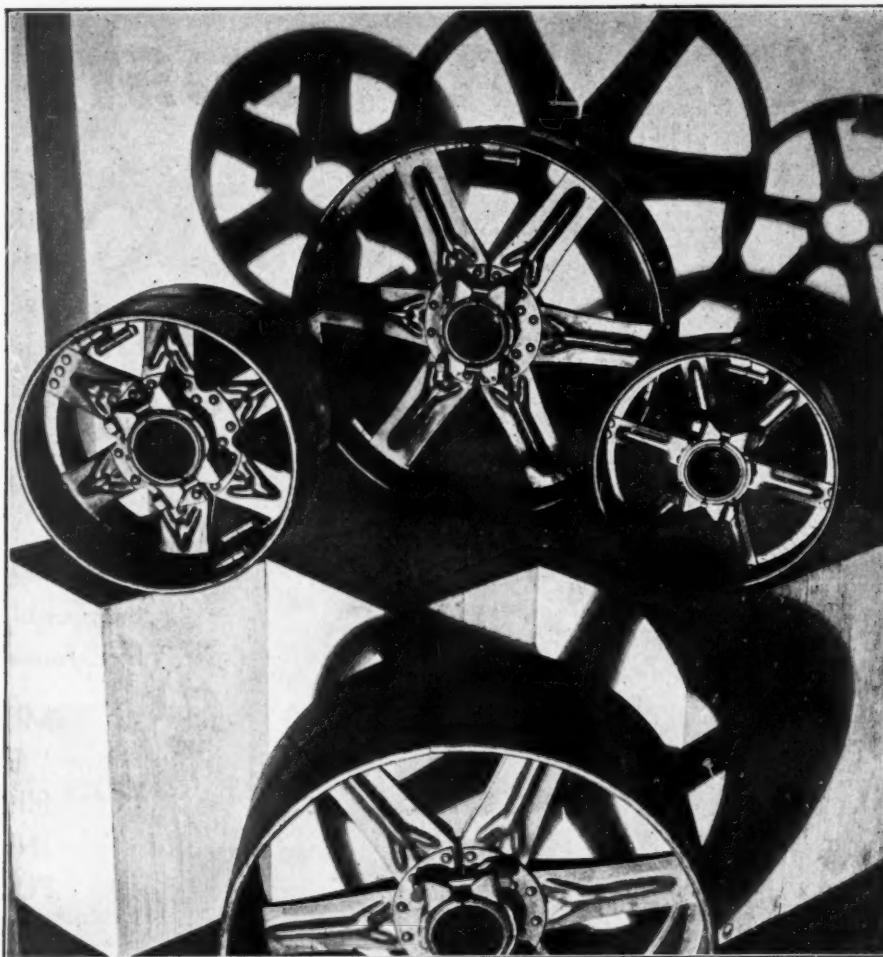
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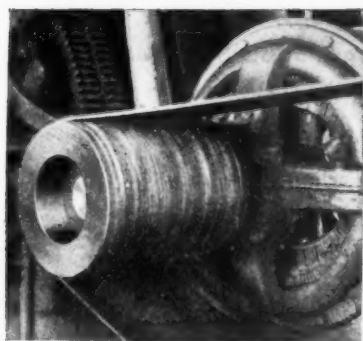


Dependable life is built into our springs in every process of manufacture.

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American Sprucolite Motor Pulleys and Machine Pulleys are made from a specially developed and extremely durable synthetic material. They possess the highest co-efficient of friction, and are considerably lighter in weight than wood, cast iron or paper pulleys.

AMERICAN
SPRUCOLITE
PULLEYS

"Speed up" is the watchword of modern industry. For in this day of close competition, profits depend more and more on production.

No machine can be more efficient than the pulleys that power it. High-speed machines demand modern pulleys, not only capable of keeping up with the pace—but of assisting in the race against time by speeding power on its useful way.

"American" Pressed Steel Shafting Pulleys are the *fastest* pulleys offered to industry, today. Scientifically designed for great strength with light weight, they reduce the dead load on the shaft. Their thin A-braced arms cut the air like a racing car.

They possess a higher co-efficient of friction at high speeds due to the exclusive grooved air escape that dissipates the air cushion under belt. Carefully balanced, they lessen vibration. More durable, they withstand greater stresses and reduce costly interruptions in production schedules.

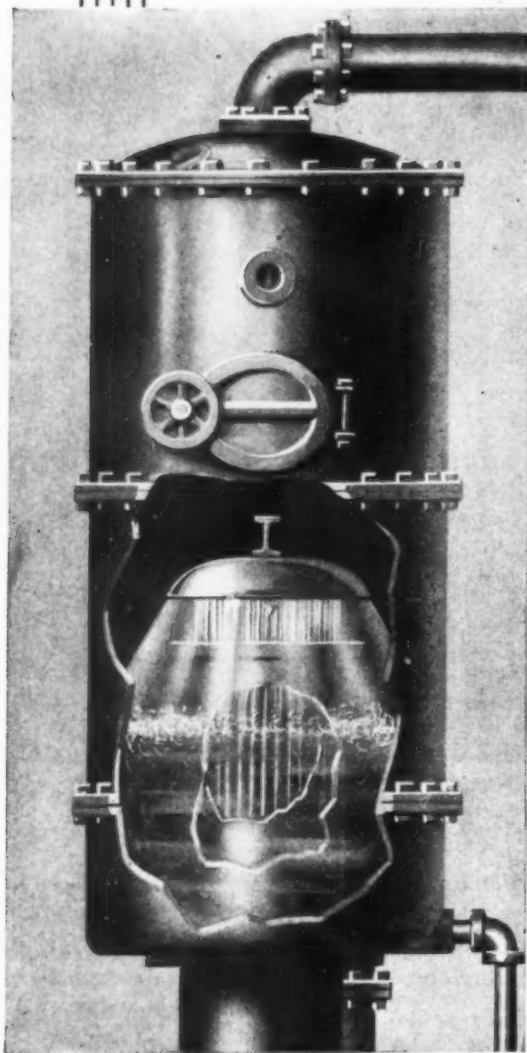
Standardize on these better pulleys, easily available from coast to coast. Ask any dealer about them or write for further information.

THE AMERICAN PULLEY CO.
4200 Wissahickon Ave. Philadelphia, Pa.

Pressed Steel: Shafting Pulleys, Hangers, Hand Trucks, Miscellaneous Stampings. *Sprucolite* (Compressed Spruce) Motor Pulleys, Machine Pulleys.



Cut Lime Costs in Half



High Density Liquor at Low Cost

The Swenson Forced Circulation concentrator easily handles pulp mill black liquor at the density required by modern recovery furnace—eliminating the use of disc evaporators and incinerators. It will operate under high pressures in the vapor head so that the vapor may be used again in process—to operate a preheater or the first effect of a quadruple effect evaporator—reducing over-all steam costs.

Send for Bulletin S-128.

A LARGE western pulp mill saved \$47,000 in one year by reburning lime. Swenson Recovery Systems have made this possible in sulphate as well as soda pulp mills. Where the cost of lime is high, savings may be more than 50 per cent of the cost of fresh lime.

Our engineers will gladly estimate the possible saving in your mill. Write for information on:

MULTIPLE EFFECT
EVAPORATORS
HIGH CONCENTRATORS
INCINERATORS
PULP WASHERS
SLUDGE FILTERS

Swenson Evaporator Co.

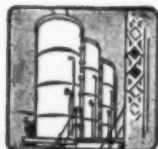
15645 Lathrop Avenue
Harvey, (Chicago Suburb) Illinois

RESEARCH SERVICE

A new service is now available to the process industries: semi-plant scale experiment and expert counsel in engineering research, pilot plant operation and complete plant design, under guidance of Prof. W. L. Badger, Whiting-Swenson Company, Ann Arbor, Michigan.

SWENSON

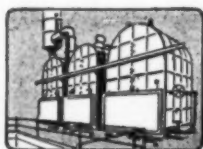
Recovery Systems



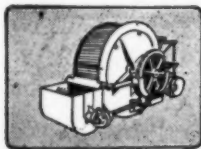
BASKET TYPE
EVAPORATORS



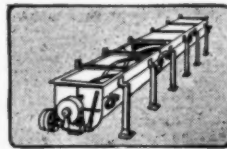
VERTICAL TYPE
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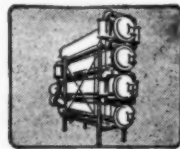
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ROTARY VACUUM
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CONTINUOUS
CRYSTALLIZERS



YARYAN
EVAPORATORS



cooper hewitt light is as **“SOFT”** as moonlight
yet better than daylight

THE late Dr. Steinmetz, electrical genius, is one of a number of authorities for the statement that yellow-green light is the most harmless, the least irritating to the eye. “The harmful effect of working very much under artificial illumination,” he wrote, “does not exist with cold light such as the light of the mercury lamp.”

Cooper Hewitt mercury-vapor lamps give light that is as soft as moonlight, yet better than daylight. The reason is that it is composed *almost exclusively* of the light rays found *in the middle* of the spectrum. To understand why these are the rays of greatest *seeing power* you have only to remember that as you go away from the middle of the spectrum in *either* direction you reach light waves by which the eye does not see

Science says the cool yellow and green rays of the spectrum are the rays by which we see best. The remarkable seeing power of Cooper Hewitt light is accounted for by the composition of its spectrum — over 90% yellow-green.



at all. At one end is the infra-red; at the other, ultra-violet.

Cooper Hewitt light for most industrial uses is *better than daylight*. In plants where it is used workmen see all objects as sharply and clearly as if they were magnified. To realize this you have to remember only two facts: That the colors of which daylight is made come to a different focal point after they pass through the lens of the eye, and that Cooper Hewitt light is made up mostly of yellow and green which focus practically as one color (yellow-green). Thus it makes objects sharper and clearer in form and outline.

Blue and violet, which have comparatively little seeing power, comprise less than 10% of Cooper Hewitt light.

Many other advantages of Cooper Hewitt light are explained in a new illustrated booklet. You are invited to write for it. No obligation. General Electric Vapor Lamp Company, Hoboken, N. J.

Join us in the General Electric Hour, broadcast every Saturday evening at 9 o'clock E.S.T. on a nation-wide N. B. C. network.

GENERAL  ELECTRIC
VAPOR LAMP COMPANY
(Formerly Cooper Hewitt Electric Company)

[See next page]

Cheaper to prevent than to pay for—



Hundreds of industrial accidents happen like this:

The power was shut off. Two workmen started to disassemble one of six semi-automatic, group driven machines.

A repairman, cleaning the others, needed a certain tool. A bright, bare, drop-lamp, suspended as usual just above the machine's working level, threw its glare into his eyes—and cast the dark shadow of the machine-frame across the safety switch. He reached for the tool and grasped—the switch.

+

Result: A part of one workman's finger severed; the other's foot bruised and his arm cut.

+

Adequate and proper illumination, the insurance company reported, almost surely would have prevented this accident—just as it would prevent thousands of others throughout industry.



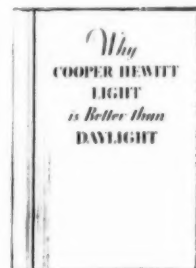
BETTER THAN DAYLIGHT

And who paid for this accident? Well, in compensation and medical charges the insurance company paid—\$317. In uninsured and uninsurable damage to machines, plus idleness, plus interrupted operating schedule, the employer who was “economizing” on his lighting bill paid—\$1,700.

+

On the other side of this page you may read how Cooper Hewitt mercury-vapor illumination can prevent accidents in industrial plants by providing light that is “better than daylight.” In hundreds of modern plants today Cooper Hewitt light is *proving* how much cheaper it is to prevent than to pay for accidents—in addition to increasing production, reducing spoilage and otherwise improving efficiency generally. General Electric Vapor Lamp Co., 819 Adams St., Hoboken, N. J.

MANY other advantages of Cooper Hewitt illumination are given in a simply written booklet “Why Cooper Hewitt Light is Better than Daylight” which will be sent gladly upon request.

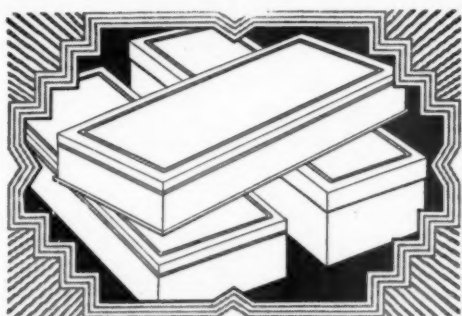


Join us in the General Electric Hour, broadcast every Saturday evening at 9 o'clock E. S. T., on a nation-wide N. B. C. network.

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VAPOR LAMP COMPANY

(see preceding page)

(Formerly Cooper Hewitt Electric Company)



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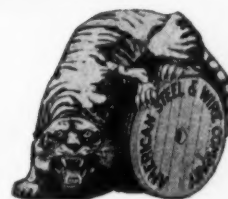
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and in the South...

AT Birmingham, Alabama, is the magnificent Jefferson County Court House, pictured below. Holabird and Root were the Architects—Harry B. Wheelock, Associate Architect. Ingalls Iron Works Company fabricated the steel and Southern Ferro Concrete Company were the General Contractors. Here again Carnegie Beams were chosen to form the steel framework.

The popularity of Carnegie Beams is nation wide. Every important city in the United States—North, East, South and West—is represented in the imposing list of structures in which these modern sections have been used. Architects and steel designers have been quick to recognize the remarkable adaptability of Carnegie Beams to their needs—to see the unlimited possibilities in design and construction these wide, parallel-flanged sections present.

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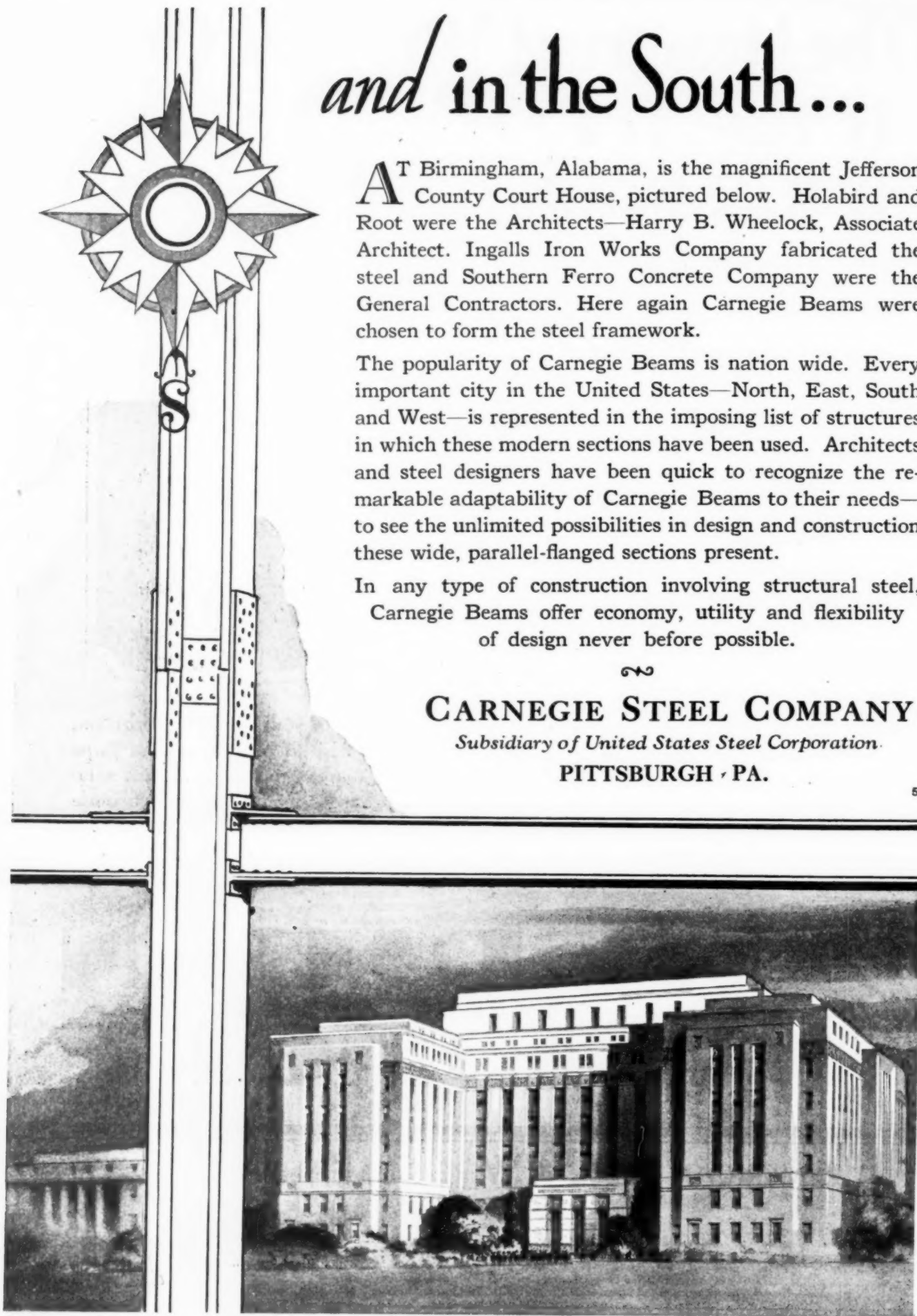


CARNEGIE STEEL COMPANY

Subsidiary of United States Steel Corporation.

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Another Glorious Tower Salutes the Southern Sky

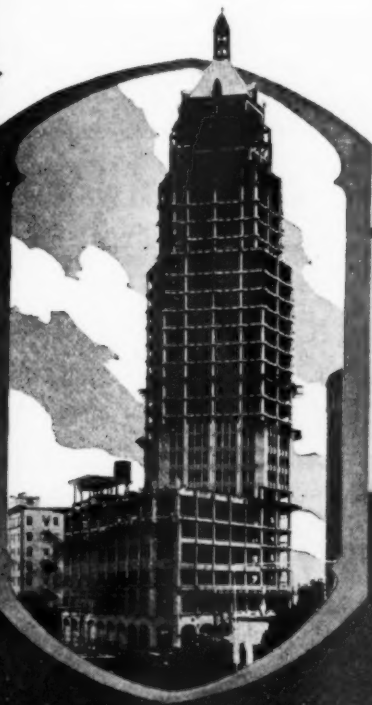
THIS thirty-one-story addition to the sky-line of San Antonio exemplifies to a marked degree the modern trend in architecture. Beauty of line and detail, refinement of finish, efficiency in lay-out and operation have been attained through artistic and practical conception and faithful execution.

The necessarily inherent qualities . . . strength, safety, durability, fire-resistance . . . have been built in through the use of TENNESSEE STRUCTURAL STEEL.



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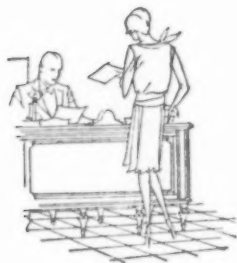
Bonded Floors of cork-composition and other resilient materials have natural buoyancy. They're *live!* Installing such floors in a store or office is like putting shock-absorbers on your automobile. They take the jolts out of the day's work.

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You may pay as much or as little as you choose for your cork-composition floor. If your lease is short, install one of the lighter weights of *Sealex* Linoleum. If you own the building and want the finest floor that money can buy—one that will last a lifetime—get *Sealex* Treadlite Tile in a pattern designed and laid to your order.

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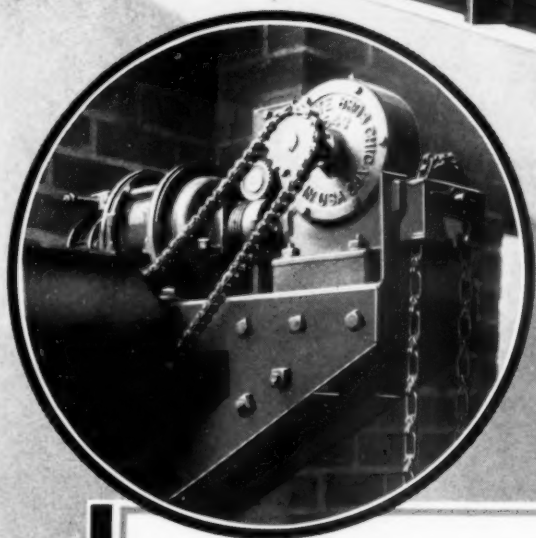
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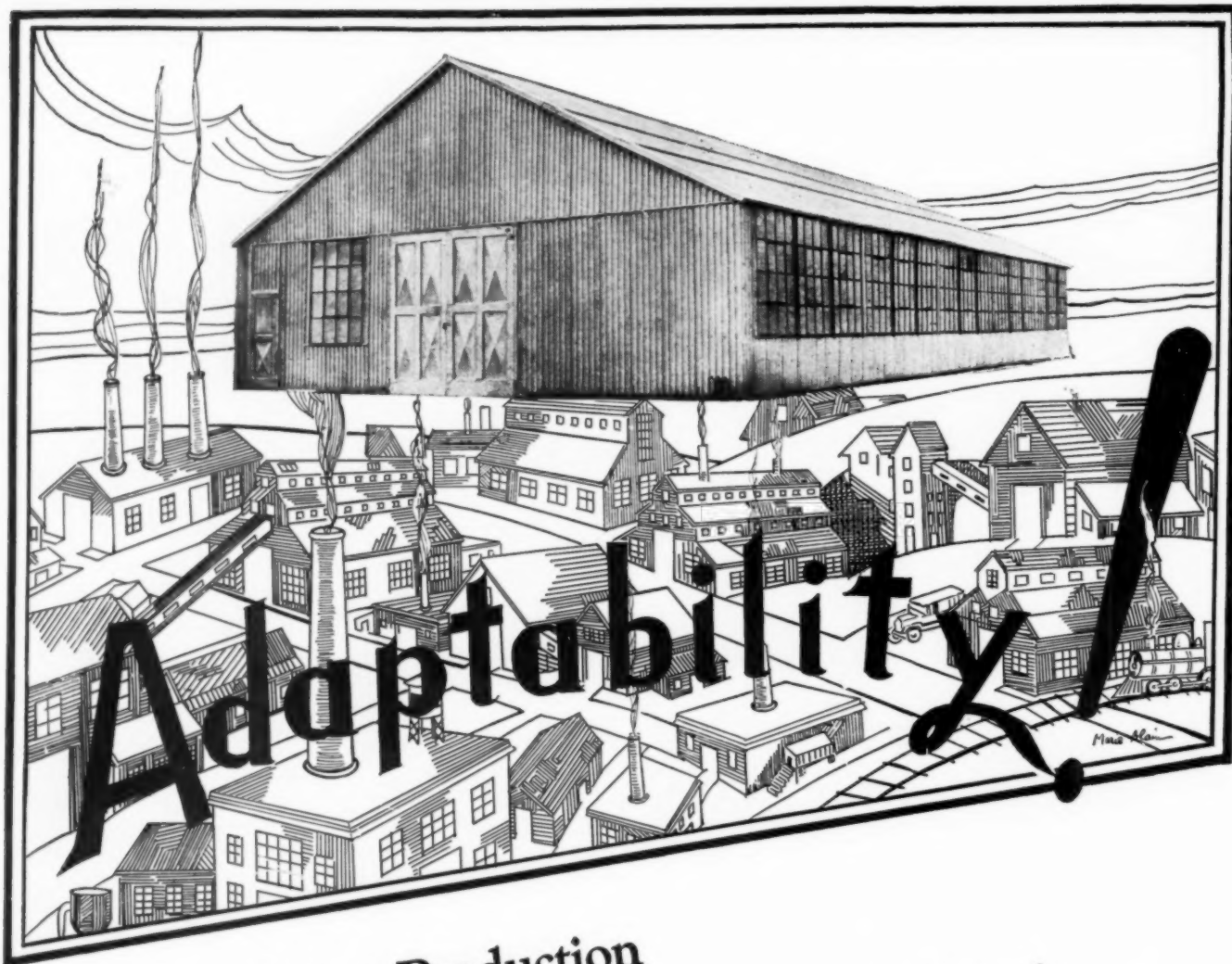
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The Kellogg Company has invested in QUIET

Costly, nerve-destroying Noise has been banished from the general offices of this famous cereal plant by the use of Johns-Manville Sound-absorbing materials

AS a manufacturer of food it is essential that the Kellogg Company operate a model plant. But there is more than this necessity behind the progressive methods which provide the best possible working conditions for the more than 2,000 employees in the Battle Creek plant of this famous producer of cereals.

The Kellogg management has wisely recognized that office noise is, in many ways, too costly to tolerate. Office workers must have alert minds. They must work with accuracy, and with reasonable speed. They are entitled to good health. Under the strain caused by ordinary office noise, errors are made, work is done slowly, in nearly all large offices absences due to illness are higher than need be.

A Quiet Office is a Profitable Investment

By installing Johns-Manville Sound-absorbing Treatment in its offices, the Kellogg Company has contributed directly to the comfort and health of office



Packing machinery on the floor above, together with the noise made by hundreds of employees checking in and out, formerly created an almost unendurable disturbance in this corner of the Kellogg plant. Johns-Manville Sound-absorbing Material applied to the ceiling has reduced this noise so that the telephone operators can now work in comfort, while it is pleasanter for everyone passing through.

workers, and in doing so has made an investment which shows an ample return in improved office work.

Practical experience and laboratory tests, alike, prove the harm and the costliness* of ordinary office noise. And the J-M method of noise control is scientifically correct — it does reduce costly noise. It is based on years of experience in the field of acoustics. With J-M Methods your office can be quieted without disturbing your regular routine. The materials are ordinarily applied to the ceilings, and not only do not interfere with decorative effects, but many times can be installed so as to actually improve office appearance.

You Need Protection from Noise

It will pay you to take stock of the noise situation in your office. Can you afford to exert needless energy in your daily work? Can you expect your associates to be at their best when they, too, are under constant and unnecessary nerve strain? From the viewpoint of health alone you need Johns-Manville Office-quieting Treatment in your office. When you consider the immediate improvement in work done, which office-quieting brings about, you will see still further advantages in this modern office necessity.

May we discuss your office with you in relation to noise control? We will gladly arrange to have a J-M Engineer call, without obligation on your part, to discuss the control of sound in any type of interior.

*An eminent psychologist, in a scientific analysis of conditions in one office, found that J-M Office-quieting resulted in a 12% increase in the output of office machine operators. In another office the result was to cut errors 42% in a telephone operating room. An investment in quiet will pay you real dividends.



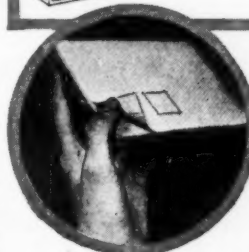
Here the noise of many office machines and the activities of a busy staff are subdued to an undisturbing level because the ceiling has been covered with Johns-Manville Sound-absorbing Material.

"Now—a model plant throughout"

I have long felt that executives, while providing ideal working conditions in their factories, have often overlooked the comfort of office workers. The noise in the average office is sufficient to cause undue fatigue on the part of those whose duties require mental effort. Johns-Manville Sound-absorbing Treatment has enabled us to reduce noise in our office to an undisturbing level, and we now feel that we have a model plant throughout.



W.K. Kellogg



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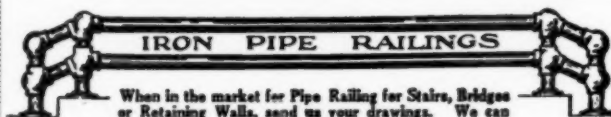
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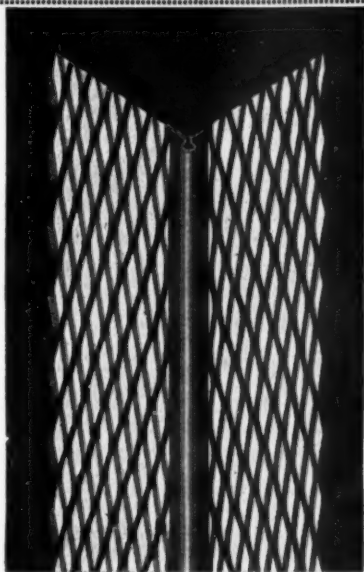
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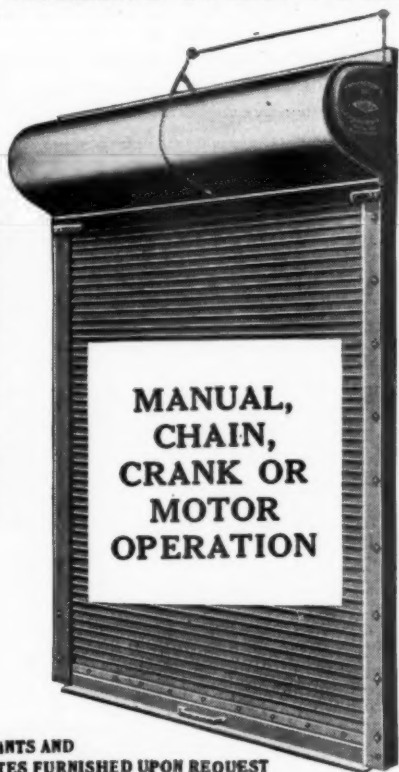
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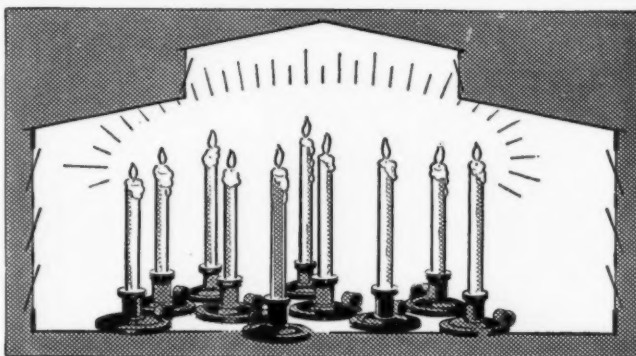


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The "foot candle" is the quantity of light thrown by a "standard candle" on a surface 1' square, held 1' away at all points.

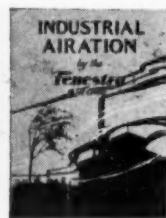
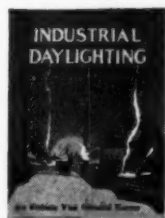
10 FOOT CANDLES of Daylight

Ten foot candles of daylight at every point on the working plane is the minimum of natural light needed for good work in any factory or office. Some factories have a 45 foot candle minimum.

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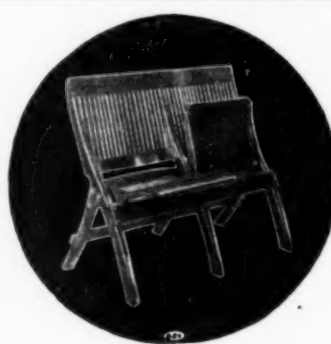
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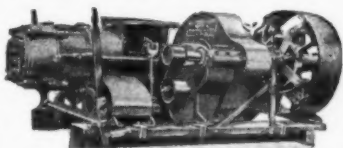
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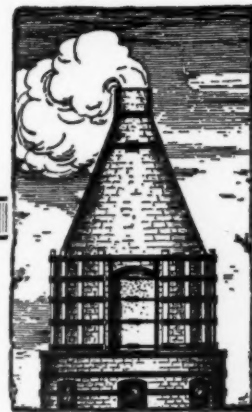


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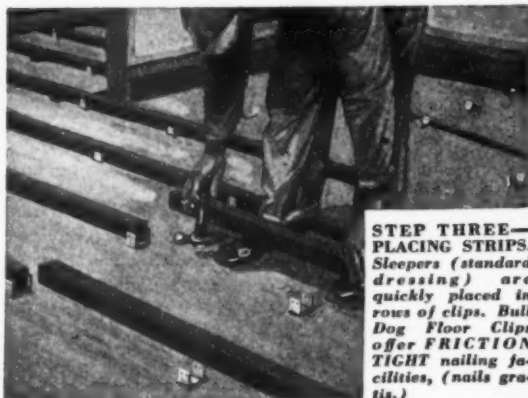
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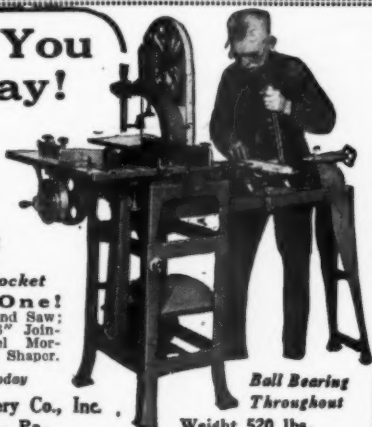
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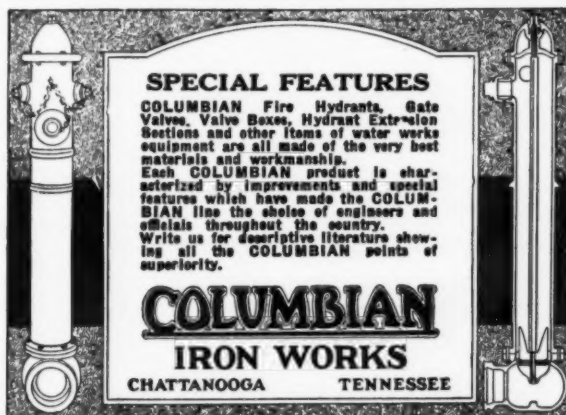
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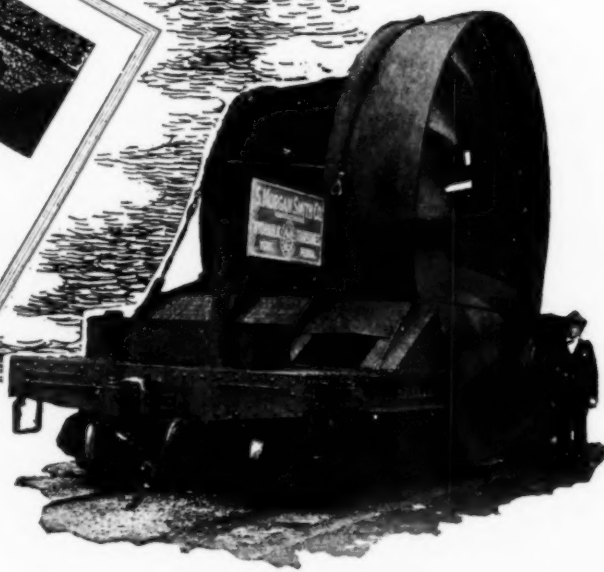
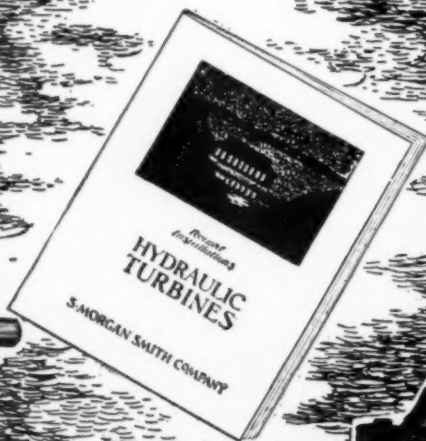
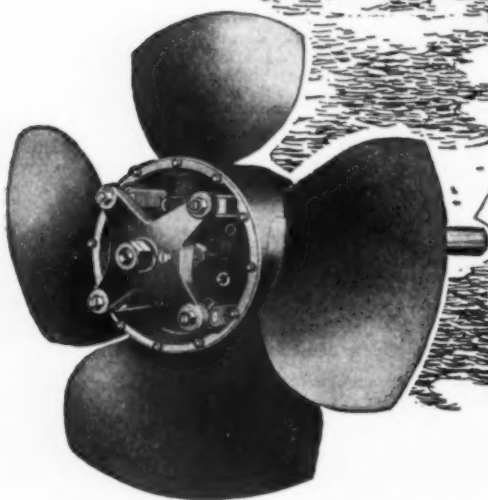
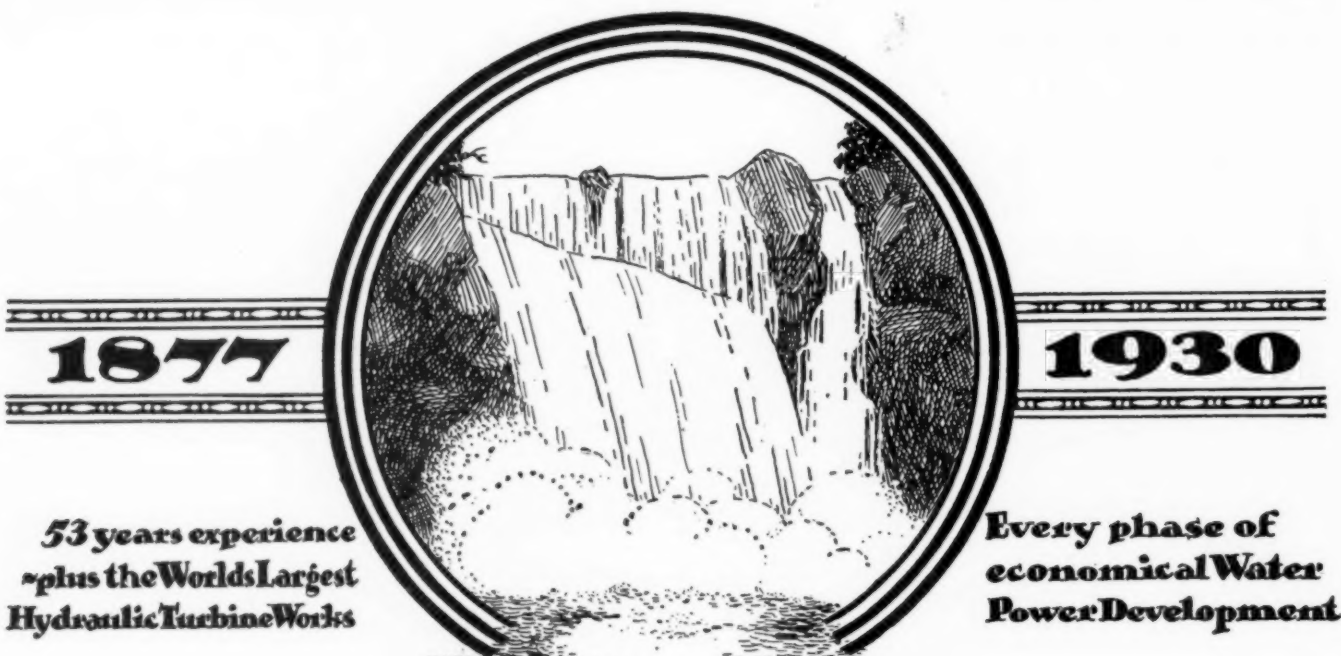


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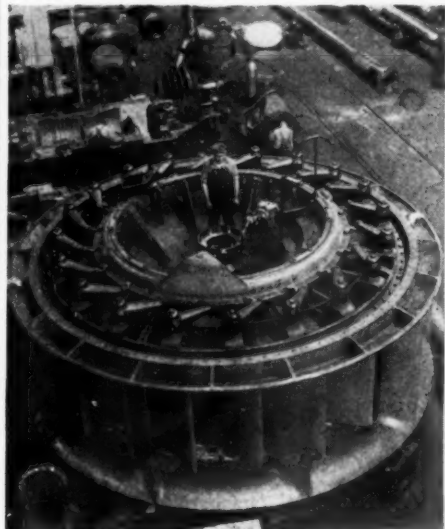
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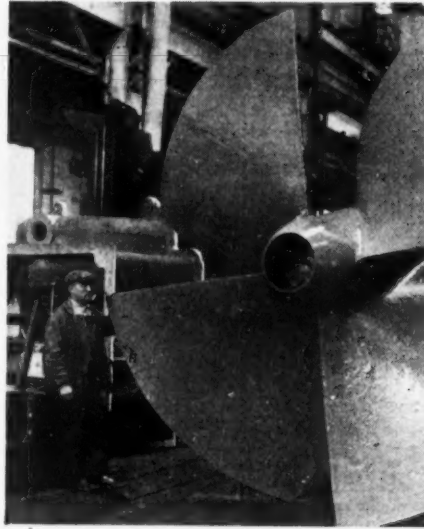
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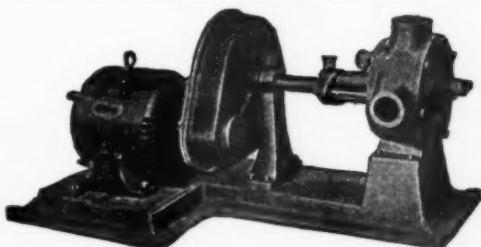
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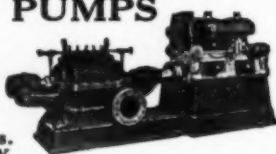
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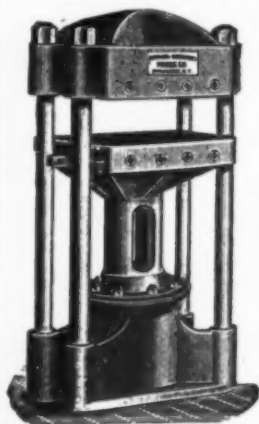
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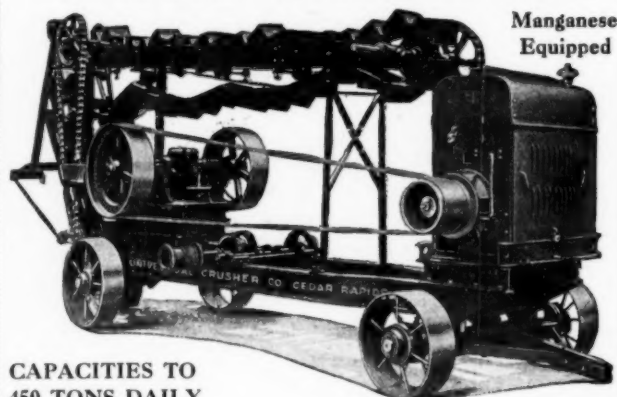


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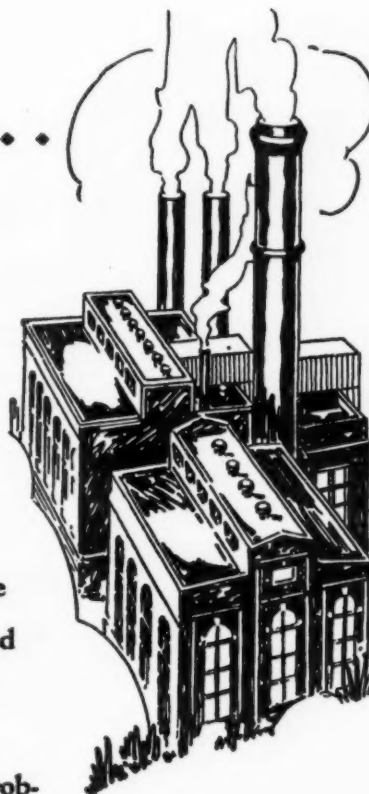
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Names of world significance are becoming identified with some of the basic industries in Texas. Their coming has been paved with cold facts regarding all factors relative to their successful operation here.

The Texas Power & Light Company, serving a group of progressive Texas cities and towns, has many facts, some of which might be helpful in solving a location problem for you. We will gladly furnish specific information to interested executives.

TEXAS POWER & LIGHT COMPANY

General Offices
Interurban Building
DALLAS, TEXAS

Providing for the Texas of Today;
Planning for the Texas of Tomorrow.

Manufacturers Record

Reg. U. S. Pat. Office

Devoted to the Upbuilding of the Nation Through the Development
of the South and Southwest as the Nation's Greatest Material Asset

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A New Era of Southern Development Opening Up for Progress and Prosperity

THIRTY to forty years ago the thought of the South and the thought of the country about the South was largely concentrated on its coal and iron development. A little later the possibility of making steel in competition with the great steel interests dependent upon Bessemer ores was one of the outstanding features of Southern business life. With these two important factors recognized, the attention of the country was largely given to the growth of the cotton mill industry in competition with the mills of New England. For a long time it was a question whether the South could compete with New England in cotton manufacturing. It is now a question whether New England can continue to compete with the cotton mill industry of the South.

Then came a nation-wide interest in electric power development and the thought of the country turned to the wonderful progress that was being made in the South's steam and hydro-electric power expansion and its influence in attracting industry to that region. Then came the enormous oil development of the Southwest, giving to the South at the present time an output of 610,832,000 barrels or 60 per cent of the total of the United States, and 41 per cent of the oil production of the world.

One by one these industries became firmly established; then attention was drawn to forestry and to the building of paper mills throughout the South, until the paper industry reached a point where it was recognized as firmly planted on Southern soil and it was seen that the center of the paper industry of the country would eventually be in the South where trees grow so much more rapidly than in the cold latitude of the North and in Canada.

Then came the rapid development of the rayon industry, of chemical and other important interests.

Next has come with a rush that almost startles the nation, the development of natural gas. So far as human knowledge goes the South is the greatest natural gas region of the world. So vast is the quantity of natural gas that foremost capitalists of America and the great oil companies, whose fortunes are counted in the billions, have turned their attention and poured their millions into the development of natural gas for consumption throughout the South and for the piping of natural gas even to the far West. We have suddenly entered into a natural gas era even more marked in the rapidity of its development than was the era of the introduction of hydro-electric power.

A recent issue of Barron's Weekly discussing the remarkable development of natural gas which is going on in the Southwest says:

"Almost every few years a new industry comes to the

front, or some new product is developed which meets with nation-wide acceptance. Today it is apparent that natural gas is the major industry to come forward. The natural gas industry is quite comparable to that of the electric power and light—the field is similar, and its development apt to be more impressive. A few days ago details of a \$200,000,000 natural gas merger were published, others are under way, and it is easily seen that we shall soon have an industry built up on natural gas similar to our super-power companies."

This statement briefly outlines one of the most remarkable phases of American development. It was but a year or so ago that the report that natural gas was to be piped from Louisiana to Birmingham and Atlanta was regarded as something of a visionary enterprise. At that time the engineers, Ford, Bacon & Davis, in giving some facts to a member of the MANUFACTURERS RECORD staff said that great as this enterprise seemed to be, involving about \$35,000,000, it was really small in comparison with some of the things they would soon be able to announce. One by one announcements have come from banking and engineering houses to such an extent that the \$35,000,000 enterprise does indeed look like a small undertaking as compared with the vast interests now operating in building in the aggregate some thousands of miles of pipe line and carrying natural gas from Texas and Louisiana and other parts of the Southwest to the Central South and to the West.

When electricity was first brought into use many people thought the artificial gas industry of the country was doomed by reason of the development of electric power, but as a matter of fact the gas business developed rapidly and gas and electricity, though active rivals in a sense, are at the same time supplementary, the one to the other. The same thing will be true we think in connection with natural gas distribution over a wide area and electric power and light, neither will supplant the other. The very existence of the two will stimulate a larger development of each and bring about a more rapid development both of gas and electricity, a more rapid expansion of industrial interests, and thus the progress of the whole South will be advanced, and all that region which will be drawing upon the South for natural gas as well as for electric light and power. They supplement each other rather than injure one another.

Not one of these industries has hindered the South's progress; on the contrary, firmly established as they have become, each one of them makes a contribution to Southern advancement which cannot be duplicated anywhere else in this or any other land. As these industries one by one go forward in their development they form a combination of

illimitable influence for the broadening of Southern business life, increasing the diversification of Southern industry and carrying power out into small country villages and towns to their great enrichment and to the employment of the people.

Truly such a growth as the South now faces is unlike that which any section of this or any other country ever before enjoyed. Moreover, as one studies these steps in progress he is compelled to realize that every new industry started in the South will prove a blessing to agriculture because it will draw into industry some of the surplus labor now eking out a scanty existence on tenant farms, which instead of being an asset are really a liability to the South. These industries will also add to the number of consumers of farm products, and until the South has a ready market for its surplus products, especially of food stuffs and feed stuffs, its agriculture will never reach that degree of prosperity which exists in states where industrial employment is on a sufficiently large scale to create home markets for every line of diversified products that a farm can produce. And more than that, this industrial development will furnish an ever-growing opportunity for the young people of the South to find profitable employment in their own section without having to seek it in other parts of the land.

A SUGGESTION FOR SALESMEN

A LETTER that one of our large advertisers is sending to his salesmen contains a suggestion which might be valuable to a good many salesmen in many lines who are not satisfied with the results they are getting. Describing and enclosing reprints of the advertisements the company is running in the MANUFACTURERS RECORD and other business papers, the letter says:

"It is a great program and it is doing great work. We are constantly receiving words of cheer from the selling organization, telling how through our advertising, the way has been smoothly paved into a desirable order. This would make us feel good if it was not for worrying about those of you who have yet to experience the real assistance this program will give when you are on a long hard pull. If you are in this group, has it not been your fault in failing to tie up your effort with our advertising? Let's play on the same team."

Some of the greatest and most successful advertisers have worked out elaborate courses for instructing their sales and advertising forces in the compelling power of advertising for building sales, *when it is properly coordinated with the sales effort*. Doubtless some of the readers of this editorial have seen the interesting motion picture in which one of the great manufacturers of electrical refrigerators has dramatized the fashion in which advertising breaks down sales resistance. One scene in that reel shows a salesman approaching the front door of a home over a tiled sidewalk, and every tile in that walk is one of the magazine advertisements of the product he is selling. With his way thus paved, he rings the bell, introduces himself to the attractive young matron who opens the door, and is greeted in a fashion to suggest how thoroughly welcome is a representative of that refrigerator.

The point of the whole story is that the company's success has been based largely upon coordinating its advertising with its selling efforts. It has broken down sales resistance; has paved the way for its salesmen by its advertising; and has put the product into tens of thousands of homes. The letter quoted above uses the same phrase, "We are constantly receiving words of cheer from the selling organization, telling how, through our advertising, *the way has been paved into a desirable order.*"

We suggest that sales departments not satisfied with results make an effort to use their company's advertising more effectively.

COTTON GROWERS CAN LEARN A MARKETING LESSON FROM WHEAT GROWERS OF CANADA

IN view of the activities of the Federal Farm Board to find a way to safeguard the farm interests of the country it is interesting to study the story from Ottawa of how Canadian wheat growers have been meeting the situation as told in a special article in the Christian Science Monitor. The opening statement is worth the careful study of all business men of the country:

"Governments are coming to a realization of the fact that a large majority of what are referred to as the 'common people' are agriculturists, and that agriculture must be prosperous or the entire economic structure wobbles. Wipe out any other industry and the world merely halts and then goes on again. Wipe out agriculture and the situation is serious. The dominant factor in the World War was the food blockade. One of the deciding factors of prosperity in times of peace is the price of food."

In giving particulars in regard to the Canadian wheat pool, organized by and for the farmers of Canada, it is stated that it is based on contracts entered into by 135,000 farmer-members to deliver all their grain to the pool. Formerly each farmer marketed his own wheat, his teams hauling the wagons across the prairies to get to the elevators before the price dropped. Last year the pool members delivered 253,102,585 bushels of wheat. Had all this wheat been thrown on the market when first threshed the price unquestionably would have gone down heavily, and every farmer would have lost. So the farmers of the pool organized their own selling agency which last year marketed 1,000,000 bushels a day. Not 250,000,000 within 100 days, but the whole spread over a year; not sold for whatever price it would bring at the local elevator, but sold in an orderly manner in whatever section of the world the best price was offered. Under the old custom the line elevators would buy up the wheat; it would pass through the Winnipeg Grain Exchange to Fort William, then via Buffalo and other ports to the seaboard, thence to world markets; and every move made in handling it would have to pay a toll, leaving but little profit for the farmers.

Whenever the farmer delivers his wheat under the present system he gets a ticket for the initial payment. This can be cashed at the bank, or used to pay debts, or turned into the general store as cash. Initial payment for the 1928 crop was 85 cents per bushel. As the crop was moved to the market and paid for, second and third installments were paid, making a total of \$1.18½ per bushel. Members of the pool are obliged by contract to deliver all their grain to the pool; entry is voluntary, but the contracts for one who does enter run for five years.

In the United States it has been the custom for many years for farmers to rush their wheat to market as rapidly as threshed in the summer or early fall, thus breaking down the price by flooding the market with more than it can promptly absorb. The same thing is true as to cotton; apparently every grower rushes hotfoot to the nearest market to offer his cotton for sale. Local buyers, representing mills in this country and abroad, have in many cases, so common report says, combined to beat down the price of cotton. It has been repeatedly stated that when the farmer brought his cotton to these local markets a buyers' agent would bid a low price and tell the farmer, "Now, you can go and try somebody else if you feel so disposed." And the next man, having made a deal with the first, would offer a lower price, and when the farmer said that John Smith had offered him a better price the second man would say: "Well, you'd better

sell to John Smith as quickly as you can, because I am not going to pay any such figure."

The farmer, discouraged by these tactics, would either sell for whatever he could get, or occasionally he would haul his cotton back home. This charge against the buyers has been repeatedly made throughout the South. The farmers, being in debt to merchants who have grub-staked them, rush their cotton to market in this way and rarely get the benefit of a fair price.

If the Federal Farm Board can devise a plan to meet this situation and enable the cotton grower to hold his cotton for gradual sale through a co-operative agency it may succeed in turning cotton growing from a poverty-producing proposition to wealth producing. Nevertheless, at the present time it is especially important for cotton growers of the South to reduce their acreage. Their plans should be to raise all the foodstuffs and feedstuffs needed and plant only so much cotton as they and the members of their own family can cultivate and pick.

WASTE ELIMINATION A GROWING SOURCE OF REVENUE

EFFORTS to eliminate waste, so greatly encouraged by Mr. Hoover while Secretary of Commerce, are increasing with the growing intensity of competition. Our national habit of wastefulness, natural enough in a pioneer society where resources are superabundant and production is less than demand has been recognized as wholly out of place today, and the drive against it comes from all directions. "Increasing competition, both at home and abroad, is awakening us to a realization of the fact that if the United States is to retain its present position in the world, waste elimination and prevention must become a nation wide habit," says a booklet on its plant waste elimination campaign published by the Westinghouse Electric & Manufacturing Company. From a more personal viewpoint, individuals and corporations alike are learning that if they are to get the most out of their own resources they must prevent needless waste of any part thereof. In fact, many a corporation has discovered that elimination of certain wastes would mean the difference between a steady profit and a fatal, steady loss, while whole new industries have sprung up and flourished by salvaging waste materials.

The Department of Commerce recently announced that the salvaging of waste metals alone has grown into, not a million but a billion dollar industry. At least half a billion dollars worth of scrap iron and steel is reclaimed annually; jewelry and dental waste furnish the largest supply of recovered gold and silver; about 15,000 pounds of mercury are being recovered annually in Nevada from old dumps and slimes at mills which formerly treated gold and silver ores by the amalgamation process; more than 500,000 short tons of copper are recovered annually; babbitt, solder and bronze are salvaged in railway shops; copper is recovered by one large electric lighting corporation from the brass shells at the end of burned-out lamps. More than 300,000 short tons of lead are recovered annually, chiefly from battery plates, lead cable, lead pipe and lead lining of acid tanks. About 70,000 short tons of zinc are recovered in unalloyed form and more than three times as much in brass and other alloys. Recovered tin is worth from \$35,000,000 to \$45,000,000 annually, and is about 41 per cent of the amount annually imported.

The petroleum industry saves large sums by salvaging equipment.

The list could be strung out considerably. The point is that enormous wastes are still in evidence on all sides of us, and some industries still can make considerable headway in this field.

UNWISE POLICY OF PERMITTING PRIVATE INDIVIDUALS TO ERECT POSTOFFICE BUILDINGS FOR LEASE TO GOVERNMENT

THE movement in Congress to investigate the erection of postoffice buildings by private concerns to be leased by the Postoffice Department has come none too soon. The MANUFACTURERS RECORD for several years has pointed out the folly of this government permitting private concerns to erect costly buildings, to be rented on long term periods to the United States Government as though this government were too poor to erect such buildings.

Great stress has been laid in the advertisements for the sale of the bonds on these buildings as to their safety, by reason of the fact that they were safeguarded by long term leases to the government at a rate which would more than amortize the bonds. Here is the richest country in the world permitting private contractors and bankers to float securities at 6 per cent for erecting postoffices to be leased to the government, promoters of such enterprises making much more than the 6 per cent interest on the bonds. The government can borrow money at a much lower rate of interest than individuals and erect its own buildings and should not permit the erection of postoffice buildings whereby bankers and others make a large profit at the expense of the people of the country.

TURNING ACCUMULATED WEALTH TO SERVICE OF HUMANITY

THE vast accumulation of wealth in the East and likewise in the West has made it possible for men of almost boundless wealth to endow with millions and tens of millions of dollars the educational institutions of the East and the West. The people of the South have not yet had the opportunity to accumulate such large fortunes and, therefore, are not in a position to endow their colleges and universities with anything like the degree of liberality bestowed upon Eastern and Western colleges. Every now and then some wealthy man or woman gives \$5,000,000 or \$10,000,000, and sometimes the amount is trebled and quadrupled, to a university of these richer sections.

Would it not be well for men of such limitless wealth, realizing the vast good that could be accomplished not only for the South but for the country, to pour some of their millions into the endowment of Southern institutions of learning?

A few months ago a New Yorker died leaving an estate of over \$180,000,000, a considerable proportion of which was given to educational work. Other men ranking in wealth anywhere from \$25,000,000 to \$100,000,000 could render to the entire nation a service of immeasurable value if they would help to endow Southern colleges and universities with that degree of liberality which has marked the history of so many in dealing with Eastern and Western schools. Here is a field for the broadest work of men who love humanity, men who have accumulated or inherited vast fortunes, and who in seeking ways in which to render an account to humanity of their stewardship of these vast fortunes could serve the South and the nation alike.

The question for each man to settle is not what he would do if he had means, time, influence and educational advantages, but what he will do with the things he has.—*Hamilton Wright Mabie.*

THE SOUTH'S BOOK OF FACTS

WITHIN the confines of a single volume of about 300 pages the MANUFACTURERS RECORD each year publishes condensed facts and figures about the South's development which are not available elsewhere for reference and study by investors, business men generally, educators, and students. The 1930 edition of the Blue Book of Southern Progress, which is to be issued in the next few weeks, gives these facts on the basic activities of the South, bringing the statistics down to date where such annual figures are obtainable. The information given will enable ready answers to be obtained to many questions arising as to the extent of the South's resources and advancement.

What is the status of Southern agriculture?

Is cotton the South's main crop?

Has it continued to develop and diversify its farming operations?

Is the value of its manufactured output greatly in excess of the value of its agricultural production?

To what extent is its manufacturing expanding and what is the trend of its industrial development?

Are its power requirements being adequately supplied?

How many textile mills are in the South and does it produce more cotton goods than New England?

Are cotton mills still moving South?

What was the result of the labor disturbances in the textile mills?

How does the South's mining and mineral production compare with former years and with the rest of the country?

Is its highway and railroad building keeping pace with its industrial development?

Is the South making any headway in aviation?

How much attention is the South paying to the development of its raw materials and the utilization of by-products?

What proportion of the wealth of the United States is in the South and how does the South compare with other sections in this respect?

These and hundreds of other questions are answered in the 1930 edition of the Blue Book of Southern Progress, which will soon be ready for distribution by the MANUFACTURERS RECORD. The price for single copies is 50 cents, or 40 cents each in lots of 500 to 1000, and 30 cents each for 1000 or more.

SUGGESTS NORTH CAROLINA SPEND \$1,000,000 A YEAR TO ADVERTISE

COLEMAN W. ROBERTS of Lenoir, N. C., in an address in that city recently proposed an annual expenditure by North Carolina of \$1,000,000 a year for five years to advertise its \$300,000,000 investment in highways, resorts and power systems. He made the assertion that it would return many additional millions in tourist travel and industrial dollars now being spent elsewhere.

"North Carolina," said he, "has invested \$150,000,000 in its highways, and a like amount in resorts and power development. No manufacturer with an investment of even a fraction of that sum would fail to tell the world about his product. In view of this tremendous investment, an outlay of \$1,000,000 annually for five years would assure this state

of a much bigger slice of the \$3,500,000,000 that is spent in America each year by 45,000,000 tourists."

It is well to see the people of the South waking up to the necessity of telling the story of their resources and growth through publicity. Many cities and towns have relied too long on free publicity given by newspapers and magazines. There is need for something far greater than this. There should be a steady, unceasing publicity campaign in behalf of the whole South, and every city and town in the South which seeks to advance its prosperity.

THE BALTIMORE & OHIO RAILROAD OF TODAY IN CONTRAST WITH OLDEN DAYS

A ONCE very much discredited railroad—largely due to certain policies which prevailed in early days—has come to be esteemed now, not because of the magnitude of its business so much as because of the spirit that has prevailed under the administration of President Willard. We refer, of course, to the Baltimore & Ohio which has become one of the popular lines of the country.

There was a time when the late Senator A. P. Gorman, thoroughly familiar as he was with the whole Baltimore & Ohio situation, endeavored to persuade the trustees of the Johns Hopkins University to dispose of their stock in that line. Today the Baltimore & Ohio has been brought back to a position where its stock is once more regarded as one of the gilt-edge securities of the country. We refer, however, not so much to the value of the stock as to the complete change of manner and methods by which under President Willard the public has been made to regard the Baltimore & Ohio as an outstanding illustration of the value of the friendship of the public. Mr. Willard and his associates deserve unstinted praise for the work they have done in this respect and the example they have set to the country at large.

DON'T QUIT

When things go wrong, as they sometimes will,
When the road you're trudging seems all up hill,
When the funds are low and the debts are high,
And you want to smile, but you have to sigh,
When care is pressing you down a bit,
Rest, if you must—but don't you quit.

Life is queer with its twists and turns
As every one of us sometimes learns,
And many a "failure" turns about
When he might have won had he stuck it out;
Don't give up, though the pace seems slow
You may succeed with another blow.

Often the goal is nearer than
It seems to a faint and faltering man;
Often the struggler has given up
When he might have captured the victor's cup;
And he learned too late, when the night slipped down,
How close he was to the golden crown.

Success is failure turned inside out—
The silver tint of the cloud of doubt,
And you never can tell how close you are,
It may be near when it seems afar;
So stick to the fight when you're hardest hit—
It's when things seem worst that you musn't quit.

—Anonymous.



Curtiss Flying Service—Photo Div.

Five "Photo Ships" Which Were in Service Photographing for the Memphis District of the United States Engineers.

Aerial Photography Employed in an Ever-Expanding Field of Operations

Now Being Adapted to New Uses Throughout the South—Facilitates Preparation of Maps for Flood Control Projects in Mississippi Valley—Public Utilities Develop Big Construction Programs With Aid of Pictures Made From Airplanes

By

CARROLL E. WILLIAMS.

AERIAL photography is being utilized in the Southern states for a wide variety of purposes. Originally introduced for obtaining "bird's-eye views" of important industrial plants; views of landscapes, stretches of wilderness, parks, waterways, etc., because of their artistic settings; and of towns and cities, aerial photographs are being adapted steadily to new uses. Progress pictures of important construction and industrial enterprises made from the air supplement and take the place of voluminous reports in recording developments, for they indicate at a glance the stage of work at a particular time. General air views of this kind are often supplemented with ordinary close-up ground views to present the small details.

Highway departments of states, counties and municipalities are extensively using aerial photographs to obtain valuable information. An elaborate survey of traffic conditions on the Washington-Baltimore boulevard was made in a

single day by the use of airplanes and ground observers. Comprehensive studies of regional thoroughfare systems are

facilitated by use of air maps, which reveal not only details of bridges, railroad crossings, highway and street intersections and all similar locations requiring special study, but show the exact location of telephone, telegraph and power transmission lines, and indicate accurately residential, industrial and business developments in the area.

Business enterprises have found aerial pictures particularly valuable for advertising purposes. Real estate operators have used aerial views effectively in pointing out desirable features of subdivisions, office buildings, warehouses and manufacturing enterprises and industrial sites, with respect to location of adjacent properties and necessary facilities in the way of streets, rail and water transportation systems, bus and electric railway passenger lines, etc. More recently aerial photographs have been used to map large areas and to make possible the construction to best advantage of telephone, telegraph and power lines, gas and oil



Airview by Airmap Corporation of America, N. Y.

Southwest Pass of the Mississippi River as It Empties Into the Gulf of Mexico.



Marion, Ark., About 10 Miles from Memphis. Land is Shown That Was Laid In by the Mississippi in Past Years.

lines and similar projects. Information obtained thereby not only makes possible the building of such lines along the most direct routes, but is valuable in connection with obtaining necessary rights-of-way and in providing adequately to care for future development. Public utility companies for a number of years have used aerial photographs to assist in planning big hydro-electric developments in which extensive areas, including roads,

bridges, industrial plants and municipalities, would be inundated by backwater in the reservoir. The saving in time over ordinary methods of securing such information is an important factor. Besides, aerial photography permits of great secrecy in preliminary developments of this kind, and thus keeps down cost of land purchases.

A large scale mapping enterprise in California was recently completed by

eight oil companies, who jointly financed the cost of the survey. It is said to be the first time an oil exploration scheme of this magnitude has been undertaken on a cooperative basis. Over 2200 square miles of mountainous terrain in Salinas Valley was covered. The aerial survey is becoming an important phase of the oil geologists work, and it is said that last year more than 20,000 square miles of territory were photographed, mainly in Texas and California fields. The photographer in such work flies at a height of about 12,000 feet, in parallel straight lines, taking a series of overlapping pictures which are later indexed and combined into a mosaic, a map, or both. Such maps show all topographic details, give an idea of sub-surface conditions and enable field geologists to do their work with greater accuracy and more completely.

Perhaps no more extensive use is made of aerial photography than in preparation of maps in connection with Federal plans for flood prevention. Because of the big problem in the Mississippi Valley, for the solution of which the Government proposes to expend \$325,000,000 in 10 years, this work has centered largely in the South.

The Curtiss-Wright Flying Service, Photo Division, recently completed an aerial photographic survey for the War Department, United States Engineer Corps, Memphis District, in charge of Lieut.-Col. F. B. Wilby. A total of ap-



Airview by Airmap Corporation of America, N. Y.

Large Plant of Southern Cotton Oil Company, New Orleans.

proximately 8500 square miles was photographed. The contract covered an area lying along the Mississippi River from near the mouth of the White River northward to about Cape Girardeau, Mo., some 270 miles in length; also an area lying along White River from near its juncture with the Mississippi to the mouth of the Black River, thence up Black River to Poplar Bluff, a distance of about 200 miles. The area covered is larger than the state of Massachusetts, and is said to be several times larger than any area heretofore photographed as a commercial undertaking. Parts of the area are in Illinois, Kentucky, Tennessee, Mississippi, Arkansas and Missouri.

In general, the work was carried on in units of approximately 250 square miles; a quadrangle of 15 minutes latitude and 15 minutes longitude. When such a unit had been photographed and each exposure had been numbered serially, prints were made and assembled into a temporary mosaic. This temporary mosaic was photographed and the resulting picture is known as the index map of Quadrangle "So and So." The index map is a "picture map" of that quadrangle at a convenient scale. The serial number of each exposure used in assembling the temporary mosaic is shown on the index map. So, when the picture of some definite locality is wanted, it is possible to look at the index map and identify the locality wanted. Then the serial number of the



A Section of the Lower White River in Arkansas.

exposure that shows that locality may be noted and the picture obtained from the file.

Four photographic crews were engaged in the work. Each photographic unit consisted of an airplane, pilot, cameraman and camera equipment. A fifth airplane was held in reserve. Base of operations was the Curtiss-Wright Flying establishment located at the Municipal Airport, Memphis.

A total of more than 10,000 indexed

exposures were made to cover the contracted area. More than 500 hours of flying were required to complete the aerial photographic work, which means that well over 40,000 miles of flying was done.

Three prints of each exposure were delivered to the Engineers Corps, together with an index map of each quadrangle to a scale of 1-inch to 1-mile. Contract specified that the scale of the prints should not differ by more than



General View of the City of New Orleans.

Airview by Airmap Corporation of America, N. Y.

one per cent plus or minus. Assembling the finished mosaics and the use of the pictures in map making is being done by the engineers. Probably a set of prints will be supplied to the United States Geological Survey, since with these pictures the Survey will be able to map the area photographed with a minimum amount of field work and in the shortest possible time.

Lieut.-Col. Wilby points out that it is expected to obtain from the aerial photographs information for the following purposes:

a—Horizontal topography for the preparation, checking and revision of maps of the vast areas of alluvial lands affected.

b—As a check on appraisal work, being physical evidence of the correctness of appraisals with regard to the amount of cleared and uncleared areas, and also as to the culture and buildings, roads, drainage systems and the like lying within floodways or other areas under consideration.

c—For securing information concerning bank and bar lines which will facilitate and assist in planning regulation

works for improvement of navigation at low and medium stages of the river.

Preliminary to flood relief measures, the government contracted in December with the Southwestern Aerial Survey, Austin, Tex., for photographing and mapping 4700 miles of the Mississippi and Red River valley. Half the project was sublet to Thomas Forston, commercial aerial photographer. Planes for the other half were leased from the Southern Air Transport Division of the Aviation Corp.

The Airmap Corporation of America, Brooklyn, N. Y., recently completed for the United States Government an aerial photographic survey of the Mississippi River delta territory.

Steel Sash for Richmond Factory

The William Bayley Co., Springfield, Ohio, have the contract for steel sash, glass and glazing for the big new factory of the American Tobacco Co. under construction in Richmond, Va.

\$400,000 Theatre Under Way

Lynchburg, Va.—Foundation work has started on a \$400,000 theater here for the Lynchburg Theater Corporation, general contract for which was awarded to C. W. Hancock & Sons, Lynchburg. Plans for the building were prepared by McDonald & Company, engineers, and Robert S. Fiske, consulting engineer, both of Atlanta. The following subcontracts have been awarded:

Excavating—Craighill & Showalter, Lynchburg.

Ventilating—The Brunswick-Kroeschell Company, New York.

Brick work—P. M. Clark, Winston-Salem, N. C.

Limestone—Southern Cut Stone Company, Bowling Green, Ky.

Structural steel—Virginia Bridge & Iron Company, Roanoke.

Roof tile—American Cement Tile Company, Pittsburgh, Pa.

Millwork—Lynchburg Lumber Manufacturing Company.

Reinforcing steel—Philadelphia branch of the Concrete Steel Company, New York.

Plumbing—Moseley Brothers, Lynchburg.

Heating—Cleland Company, Lynchburg.

Plastering—Clyde M. Watson Company, Atlanta, Ga.

Sheet metal work—M. M. Nicholas, Lynchburg.

Better Cotton for Alabama

Local Mills Spinning Better Staple Now Required to Purchase Supply From Outside of State

By P. O. DAVIS, Department of Public Information, Alabama Polytechnic Institute, Auburn.

Under direction of the Alabama Polytechnic Institute and the Alabama Industrial Development Board, Birmingham, a determined effort is being made to improve the staple of cotton produced in Alabama. The movement was launched in an organized way at a conference in Auburn attended by Benjamin Russell, cotton manufacturer of Alexander City, and representative of the Alabama Industrial Development Board; Dr. Bradford Knapp, president of the Institute; Director M. J. Funchess of the Experiment Station; Director L. N. Duncan of the Extension Service; and S. P. Storrs, State Commissioner of Agriculture and Industries, Montgomery.

Discussion revealed that many Alabama mills are spinning cotton of a better staple than most of that now raised on Alabama farms. Hence, they must go to other states to buy.

Mr. Russell, speaking for the spinners of the state, said they are anxious to get Alabama cotton provided it meets their requirements.

In retrospect of cotton production in Alabama, Dr. Knapp recalled that since the advent of the boll weevil cotton breeders have sought an early maturing variety with a high per cent of lint and

making a large yield per acre under weevil conditions. A study of cotton buying at local markets in Alabama and throughout the South shows the farmer has generally received a price based on "the point system" or "hog-around buying," which means a price based on grade alone with no reference to staple length. "This," said he, "has been the reason our farmers have not been interested in growing a better staple of cotton. There has not been sufficient inducement to that end."

Director Funchess announced that experiments in recent years have revealed a variety of cotton which produces a staple of one inch or more; and this is the staple Alabama mills are demanding. It yields well in north and central Alabama, and, in fact, yielded more per acre than any other variety in those two sections of the state in experiments during the last four years.

To continue the work, President Knapp said that Alabama's system of agricultural research, much of which was made possible by an act of the last legislature, will do an extra amount of research work with cotton. The aim is to develop varieties to meet all requirements—yield, staple, and mills. "The best variety or varieties from these tests," he continued, "will be multiplied and ultimately con-

tracts will be made with farmers to develop seed for wide planting. In this way communities of uniform variety production can be created and enlarged as carefully controlled seed is available. This is a matter of very great importance. It is hoped that this cotton will all be sold through cotton cooperative associations direct to Alabama mills so that farmers will get the actual value according to length of staple as well as grade. It is expected also to make direct tie-up through this machinery with the spinners themselves and secure, as is done in certain areas in North Carolina, a premium and advantage for the local growers of good cotton of the proper length and strength of staple."

Another step will be installation at Auburn of a modern gin with a view to giving instruction to operators of gins, enabling Alabama to place on the market the best ginned cotton in the South.

The new school of textile engineering will engage in investigation and teaching so that students and farmers who come to Auburn for short courses may see the entire cotton process from growing the plant to the finished product. Although immediate benefits are expected, several years will be required for completion of the plan, bringing results of lasting good to the entire cotton industry of Alabama.

Progress of Spray Painting in the South

By-Product of Cottonseed Furnishes Base for 99
Per Cent of Lacquer Applied by Spray Method

By

WILLIAM J. MISKELLA, M. E.,
Oak Park, Ill.

EVEN as the printing press and the cotton gin improved conditions in their respective industries, so has the use of the compressed air spray gun come into the painting and finishing industry to improve the quality of work done. Fifteen years ago, when the idea of air painting was new, industries in the Southern states were slow to adopt the method. Later, they became convinced of its value and as spray-painting equipment manufacturers introduced important improvements, much interest was manifested. As a result there is



Spray-Finishing As Applied to Pianos and Other High Grade Cabinet Work

today hardly a Southern community that does not have a tradesman of some kind using this efficient method of applying paints, varnishes, lacquers, enamels, rust-proofing materials, water-proofing and so on.

Indeed, let me say that 99 per cent of all the lacquer made from cotton reclaimed from cottonseeds *after* the oil is pressed out—or, in other words from the cotton linters—is applied only by the spray method. Lacquer has become one of the popular forms of finishing materials. Due to certain peculiar properties it has to be sprayed on and compressed air spray painting equipment has solved its application problem.

It is of interest to note in the cycle of trade interchange that large lacquer manufacturers of the North buy tons of short cotton linters and in return the great manufacturing industries of the South buy spraying machines with which to apply not lacquer alone, but practically every coating material known.

When one considers the milder climate and the greater number of so-called crop days it is hard to see why the South does not use even a larger quantity of

Mr. Miskella is a consulting engineer on finishes and finishing problems and is the author of the Practical Finishing Series, a set of four books dealing with all phases of the finishing industry.

paint and varnish products, applied by the spray method. It is not a question of labor and time with the spray method, it is the quality of work produced. The entire surface of the article to be covered is evenly coated, leaving no marks of the application of the material; unique and beautiful interior decorative finishes also can be produced. I am referring now to the interior and exterior of dwellings, and as there are so many lovely old frame houses in the South these could easily be spray painted at a minimum of cost.

Spray painting equipment is found in all branches of the automobile industry, service, manufacturing, repair shops, or wherever finishing is done, even in the



Equipment Used in Spray-Painting Houses

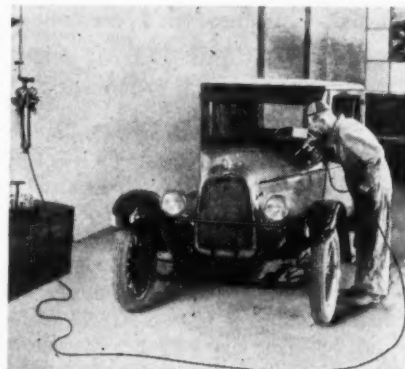
patching of the finish on cars scratched in transportation. Until recently, refinishing an automobile was a serious and tedious task, requiring two or even three weeks' time. But the new pyrolyn lacquer finishes dry within half an



Preserving Line Pipe by the Spray Method

hour and as a result automobile refinishing shops now are found everywhere. Equipment for this work ranges all the way from stationary outfits, provided with from one to five "guns," to the small touch-up device which can be carried from place to place. A similar story might be told of many oil and gas companies who have been able by this paint-spraying process to preserve their tanks and their pipe line and holders from rapid deterioration.

In the new radio industry it could perhaps be said without fear of contra-



Patching the Finish on an Automobile

diction that not one manufactured radio cabinet was ever finished by any other process than the compressed air method. And this process is followed also by piano manufacturers, as well as by nearly all furniture manufacturers. For the refinishing shop there is a vast field in the refinishing of old furniture. Wicker furniture is done perfectly by the spray method. Many furniture dealers now order unfinished stock, sending it to local shops to be finished and decorated according to the liking of the purchaser. This opens up a field for the manufacturer to fill in during dull months; he could advertise ahead and have unfinished stock on display, then paint or lacquer it when time permits. There is a growing demand for individual finishes.

The airplane industry is fast developing in the South. Here again is a field where use of the spray gun is almost a necessity, due to the nature of finishing materials as well as the varying and complicated shape and contours of surfaces which demand finishing treatment. Then, there is airport equipment maintenance and the directorial signs which come in for this method of painting.

Preservation of pipe lines is another

field that has been developed. Here heavy plastic coating materials are applied with specially designed spraying equipment, which sometimes includes a heating apparatus for liquifying the protective materials so they may be more readily applied and in order that they may more effectively render protective service after they are in use. Formerly it was the custom to bury these oil transmission pipes underground without any protective coating. Research studies recently completed have proved that it very materially affects depreciation and consequently the capital investment in equipment if provision is made to prolong the life of such equipment with a coating of plastic rust-proofing material, sometimes as much as one-fourth of an inch thick, just before the pipe sections are placed in the trench.

Record Number of New Firms Locate in Atlanta During First Quarter of 1930

Fifty-four new concerns, employing 953 persons and having an annual pay roll of \$1,581,500, have been added to Atlanta's industrial and business life during the first three months of 1930, according to a survey released recently by the industrial bureau of the Chamber of Commerce.

The total of newcomer concerns is reported to set a record as the largest number of acquisitions for this period of time since establishment of the Forward Atlanta Commission. Another record was set during the month of March, which saw 33 new concerns locate, or announce plans of locating, in Atlanta. This is approximately twice the average number of newcomers for one month, officials of the industrial bureau stated.

Advertising The Texas Panhandle

Amarillo, Tex.—Advertising plans of Panhandle Plains of Texas, Inc., Howard A. Ferguson, general manager, call for an expenditure of \$30,000 for advertising for the Panhandle-Plains country. Uniform exhibits will be sent out on trucks to show the educational, agricultural, industrial and transportation facilities of this section. In addition three railroads running into Amarillo will expend \$15,000 for advertising the territory, using farm journals, newspapers and pamphlets. The truck exhibits are expected to visit 23 or 25 state and regional fairs in Nebraska, Missouri, Oklahoma, Ohio, Iowa, Minnesota and Tennessee. Panhandle Plains of Texas, Inc., is financed by various chambers of commerce in the 45 counties which it represents, assisted by the railroads.

Textile Products of North Carolina

State Takes First Rank in Cotton Manufacturing

By PARK MATHEWSON, Statistician and Assistant Director, North Carolina Department of Conservation and Development, Raleigh.

North Carolina's principal cotton manufactures are denim, damask, towels, underwear, hosiery, gray goods, variously colored goods, plush, yarns, and blankets, sold largely through outside commission and financial houses. The annual value of its textile output is \$425,000,000. North Carolina ranks first in value of cotton goods output. In number of spindles North Carolina ranks second, but in active spindle hours ranks first, number of cotton mills first and spindler homes first, for the entire country.

Rayon Yarn

Rayon has now become so interwoven and so interknit with cotton yarns that a sketch of cotton in North Carolina would be incomplete without reference to this new entrant into the textile field. The cotton manufacturer who has already made use of this product of cotton linter, or wood pulp, has been proven a wise pioneer. The world's 1928 production of rayon is estimated the equivalent of 753,000 bales of cotton lint. In 1927, 75,555,439 pounds of rayon yarn were produced in the United States, over 130,000,000 pounds is estimated for 1929, and 170,000,000 pounds for 1930.

North Carolina now consumes an immense tonnage of rayon material, leading all other Southern states. It has suitable water, cheap coal, power, unexcelled transportation facilities, wood pulp and cotton linters, labor, and many industry consumers, all of which should contribute to the expansion of the rayon manufacturing in the state. Several

well-equipped rayon dye houses now offer their services to the public in North Carolina; two large rayon producing plants are in operation, one is among the world's largest.

Labor and Living Conditions

There are actively working in the textile mills of the state approximately 125,000 employees. Living and working conditions are as generally fair and equitable as the best minds of the commonwealth can devise, and perhaps are more favorable to the manufacturer, to the employee and to society as a whole, than can be found in any other state in the South.

Of North Carolina's 100 counties, 61 produce annually 1000 or more bales of cotton each and 45 produce 5000 or more bales each.

North Carolina's cotton crop is not all consumed by local mills. A considerable baleage goes to commission men and shippers in Norfolk and to the shippers and exporters in Wilmington, N. C., and Charleston, S. C., while the rest practically all goes direct to mills by motor truck and rail. Many farmers, ginners and country merchants are marketing their cotton first hand to the consuming industries. Modern warehouses, either Federal licensed or state licensed or privately bonded, furnishing adequate financial and storage facilities, are conveniently located throughout the cotton producing counties, eliminating excess transportation and concentration expense, as also are the 1800 ginneries in the state. Sales agents and wholesalers also operate in North Carolina.

COTTON, TEXTILES, RAYON.

(From last U. S. Census of Manufactures in North Carolina.)

	Number Estab- lish- ments	Wage Earners	Total Wages	Material, Fuel and Power	Total Value Products	Value Added by Manufacture
All Textiles and products	595	123,532	\$86,145,015	\$256,887,676	\$425,437,522	\$169,549,846
(a) Clothing, Men's						
1927 Total.....	17	1,701	980,877	3,368,225	5,251,924	1,883,699
1925 Total.....	11	1,051	607,144	2,575,739	3,754,860	1,179,121
(b) Cordage and Twine						
1927 Total.....	9	1,456	915,094	4,113,524	6,520,058	2,406,534
1925 Total.....	8	1,137	646,515	4,658,202	6,306,284	1,648,982
(c) Cotton Goods						
1927 Total.....	374	95,786	66,149,690	184,509,360	310,299,158	125,789,798
1925 Total.....	364	84,139	53,939,704	207,273,861	316,068,931	108,794,970
(d) Cotton Small Wares						
1927 Total.....	9	161	171,694	420,960	856,515	435,555
1925 Total.....	5	44	43,627	143,416	255,077	111,661
(e) Dyeing and Finishing						
1927 Total.....	16	2,545	2,228,412	13,381,416	18,996,189	5,614,773
1925 Total.....	10	1,294	999,703	6,006,111	8,510,852	2,504,741
(f) Gloves and Mittens						
1927 Total.....	4	219	91,691	393,902	612,233	218,331
1925 Total.....	4	222	102,828	277,275	575,431	298,156
(g) Knit Goods						
1927 Total.....	128	17,427	11,961,326	37,370,779	61,365,806	23,995,027
1925 Total.....	111	13,727	8,287,238	27,994,889	44,300,819	16,305,930
(h) Woolen Goods						
1927 Total.....	6	1,156	1,028,079	3,317,912	5,505,489	2,187,577
1925 Total.....	8	832	638,055	3,359,450	4,754,396	1,394,946

American Chemical Society in Atlanta Meeting Discusses Southern Industries

**Chemical Research Forecasts Great Potential Value in South's
Cottonseed, and in Pine Forests When More Completely Utilized**

When members of the American Chemical Society met at the Hotel Biltmore in Atlanta April 7-11, numerous papers dealing with important Southern industries were presented.

Untold millions in Georgia's pine forests, in its iodine deposits and in its refractory clays, lie waiting for sufficient local investment in scientific research work to bring this latent fortune to the surface, where it will be reaped by future generations of Georgians, Dr. Chas. H. Herty, industrial consultant, told a large number of City Club members at their regular weekly luncheon at the Piedmont Hotel. "The greatest possibility that lies before leaders in this state today," he said, "is that of investment of more money in brains of Georgia boys and girls to give them thorough graduate training in chemical and other scientific research, and to provide the equipment necessary to this work."

Dr. Harrison E. Howe, editor of Industrial and Engineering Chemistry, assembled samples of many chemicals or products of chemical processes of manufacture now made in the South. These included dry ice, Epsom salts, tires, rayon, glass, enamels, aluminum, leather, cement, naval stores, powder, cottonseed oil and numerous by-products—admittedly a very incomplete list, but a highly suggestive one. The speaker referred to the pine forests of the South as a possible source of high grade white paper, and declared that nitrogen fixation would be centered in the South and would make this country entirely independent of Chilean nitrates.

Progress in the use of the cotton plant, with consequent improvement in the financial condition of the cotton farmer, was described by several speakers. W. D. Munson, research chemist of the Southern Chemical Cotton Company of Chattanooga, said that 40,000 tons of synthetic silk are made annually from cotton linters, while 30,000 tons of celluloid and other cellulose compounds, including lacquers and photographic films are derived from the same source.

Dr. David Wesson of Montclair, New Jersey, developer of Wesson oil, exhibited sandwiches and other edibles in which the protein from cotton seed is used as a meat substitute costing about 5 cents per pound, and stated that the annual crop of cotton seed contains

enough protein to sustain a population of 50,000,000 people. On the basis of its protein content used as a human food, Dr. Wesson estimated the value of a ton of cotton seed at \$190, or about 6 times the present value.

Xylose, much-discussed sugar recently discovered in cotton seed hulls, is now being recovered on a semi-commercial scale at an experimental plant located at the Anniston plant of the Federal Phosphorous Company.

The process of recovery was described by Walter T. Schriber as simple and practical. It consists in first washing the bran with hot water under 15 pounds pressure, followed by a cold dilute sulphuric acid wash. The bran is then extracted with dilute sulphuric acid at 10 pounds pressure. This extract is neutralized with lime, concentrated under reduced pressure and crystallized. Xylose crystals are separated by centrifuging.

Mr. Schriber said the by-products obtained in the process are, respectively, gums, potash salts, and well washed celluloses, and that the conversion cost of crystalline xylose is about five cents per pound. This figure, he explained, includes only chemical, heat, power and water costs.

Lauren B. Hitchcock, chairman of the Industrial Committee of Virginia Section, described "the largest nitrogen fixation plant in the Western hemisphere," the great Hopewell plant of the Atmospheric Nitrogen Corporation, subsidiary of the Allied Chemical & Dye Corporation, located at Hopewell, Va. It is now producing over 350 tons of fixed nitrogen daily as sodium nitrate and anhydrous ammonia, this production being nearly twice that of all other United States plants combined. The chief distinction of the plant lies not in its size, however, but in efficient plant layout which is both compact and readily expandable perpendicular to main axis. The chemical reactions involved are materialized on the ground in straight-line flow, with two parallel lines each a half mile in length, one for ammonia synthesis, the other for production of sodium nitrate. A modified Haber-Bosch process working at 200 atmospheres is used, with raw gas generated entirely in a battery of water gas sets operating on combination make. Ammonia oxidation in an interesting

new development leads through other oxidation towers and soda absorbers to the evaporators and centrifuges, from which large conveyors lead directly to huge storage facilities or to both rail and ocean-going water transportation.

Mr. Hitchcock declared that the plant site is very advantageous from many standpoints and analysis reveals interesting economic factors. Centrally located with respect to the largest fertilizer markets, it is also conveniently situated to important ammonia and nitric acid outlets. Native labor is stable, while climate and taxes are especially favorable.

The plant is a splendid example of late developments in high pressure technique, behavior of catalysts, and economical large-scale chemical production methods, without which such a process could not compete as it does with natural nitrates. As a peculiarly appropriate answer to the challenge to applied science, it is a contribution to chemical philosophy. As a \$37,000,000 nucleus representing what is probably about 25 per cent of the ultimate works, it is an impressive contribution to America's nitrogen independence.

Mr. Hitchcock presented another paper on pulp and paper in Virginia, saying that cellulose is the basis of 65 per cent of the chemical processes flourishing at present in the state. A substantial portion of this, he declared, is contributed by the pulp and paper mills, of which there are 12, having a combined annual production greater than in any other Southern state, according to the 1927 Federal census. The claim on the interest of the industry is not based on size, however, but upon the technical methods employed, in several cases distinctly unique. Situated in a region generally regarded solely as a kraft district, Virginia manufactures an average paper product with a value per ton exceeded by only two other states, Massachusetts and New Hampshire, large writing paper producing districts.

Economic geography plays an interesting part in the location and development of this industry in Virginia, since all but three plants are located on the the West Virginia border. At Coving-James river extending inland nearly to ton is the largest plant of its kind in the South, having a 400-ton per day capacity and manufacturing a wide variety of book and lithographic papers

from basic raw materials. Another plant uses spent chestnut chips in a poplar soda pulp, believed to be the only such plant in the United States. Another mill is producing loblolly pine by a semi-mechanical process, again unique in this country. The first paper mill ever built to manufacture a liner board from chestnut chips has just been put in operation at Lynchburg, while at Richmond are large capacities for blottings, book, and high grade writing paper.

England's need of a source of pitch and tar for ships stimulated their production in this country, immediately after the founding of Jamestown, Brian S. Brown, president of the Georgia Rosin Products Company, Savannah, said. But early methods were fatal to trees, resulting in the destruction of much of the forests of North and South Carolina. No material change was made in methods of production until the work of Dr. Charles H. Herty about 1901 resulted in the use of the external cup to receive the gum instead of the destructive, internally cut "box." This, with improved methods of chipping trees, continuously increasing fire protection and rapid growth of slash pine, insures practically unlimited future supplies of rosin and turpentine. These commodities, on account of their cheapness and sureness of supply, offer an attractive field for research. Turpentine and rosin from stumps are now a practical proposition and a considerable proportion of the annual yield comes from this source.

A new, non-poisonous refrigerant was exhibited and described by Dr. Thomas Midgley, of Dayton, Ohio. Many of the chemists inhaled fumes from the volatile fluid, without injurious effects. It is claimed that use of the new compound will enable extension of the use of refrigerating machines.

Dr. John Woods Beckman, of Oakland, Cal., told of the discovery of a malt bacillus that brews coconut oil from copra, the dried meats of the coconut, and produces a better grade of oil than crushing machinery can produce. The fermentation process by which "bacillus delbrueckia" produces oil requires six days.

The \$50,000 given annually by Francis P. Garvan to school children as prizes for best essays on chemistry was distributed during the meeting. Five hundred thousand students had participated. The contest provides for a separate preliminary contest in which the six best essays from each state are entered. The prizes in each state contest are inscribed certificates, books on chemistry and \$120 in gold; while those in the national finals are six four-year scholarships at any recognized college or university in America, each providing tuition fees and \$500 in gold annually.

Development of Low Grade Manganiferous Resources

This country, states the Bureau of Mines, has relatively few deposits of high grade manganese, essential in the manufacture of steel. But manganese mineralization, varying from low-grade ore to rock carrying some manganese, is known to occur in most states. With respect to development of low-grade manganese ores in the United States, it appears that considerable technical advance has been made in beneficiation and several processes that will produce a high-grade product have been devised, says Lewis A. Smith, in a statistical report by the Bureau. However, to date, it is stated that only one of these processes has been tried in large-scale operations and it is not known whether the various other processes proposed will be able to produce their final product under present market conditions.

The straight carbonate ores can be subjected to a roast that drives off the carbon dioxide, thus increasing the manganese content. This process is being worked successfully at Butte, Mont., where an ore containing 37 per cent manganese is roasted to a product containing over 56 per cent. The Bureau has conducted preliminary experiments with rhodochrosite-silica ores, using flotation, gravity, and magnetic concentration, and has obtained results which justify the more intensive work now in progress.

The manganiferous iron ores of the Cuyana range, Minnesota, constitute another important resource. They contain 3 to 20 per cent manganese, but are usually high in phosphorus and silica. Reserves of this ore are reckoned as many millions of tons. Some of it is now utilized for making manganiferous pig iron, but most of the lower-grade material is sold simply as iron ore. The Bureau of Mines, in cooperation with the University of Minnesota, has conducted extensive research into recovery of the manganese from these ores in the blast furnace, but as yet the economic feasibility of such recovery has not been established.

At Chamberlain, South Dakota, it has been discovered recently that a very extensive 38 foot bed in the Pierre shale contains nodules consisting of iron and manganese carbonates. It is by some authorities estimated that this bed contains 164 pounds of nodules, having a manganese content of 25 pounds, per cubic yard. A part of the bed contains 40 pounds of manganese per cubic yard. Here there is first the necessity of separating the nodules from the matrix, the silica must then be removed or reduced in quantity by chemical methods,

and a hydrochloric acid leaching process has been proposed, the economic feasibility of which has not yet been shown by large-scale operations.

A large deposit of low-grade manganese ore has been located near Las Vegas, Nevada, where it is estimated locally that there are several million tons of material averaging 10 per cent manganese, with fairly high silica. Thus far the property has produced no ore for market, but considerable exploration has recently been undertaken. In the Appalachian region of Virginia and Tennessee psilomelane and wad are found embedded in residual clays. The larger-size material may readily be separated mechanically, but special treatment is required for separation of the fine material from the clay matrix. Great effort has been made in the study of this problem, and some fairly satisfactory results have been obtained without, however, yet rendering these ores generally available.

The Bureau of Mines has recently announced, as the result of work at the Mississippi Valley Experiment Station at Rolla, Mo., that psilomelane can be separated by flotation methods. Tests of other manganese oxides have been made, but less favorable results appear to have been obtained thus far. Some of the Southern Appalachian ores would seem to require preliminary treatment to remove the limonite present; one of these ores yielded an 80 per cent recovery with a rejection of 94 per cent of the original silica, aluminum, etc. It was also found that calcite, if present, floats with psilomelane.

Recent tests by the Bureau of Mines in cooperation with the University of Missouri, concerning the beneficiation of oxidized manganese ores by magnetic separation of roasted jig concentrates, indicated that some of the oxides of manganese have their impurities in the form of a physical mixture of iron oxide grains carrying the greater part of the impurities. When the ore is so constituted a reducing roast will magnetize the iron oxide so that a low-intensity magnet will remove it and leave a clean concentrate of manganese ore. By this method some of the ores too high in iron to be used to make ferromanganese may be brought up to ferro grade.

A commercial laboratory has recently developed a solution that has a density between those of the manganese oxides and the clayey gangues and that appears to offer a possible mode of attack on the problems of concentrating some of the Appalachian ores, but as yet no large-scale tests have been made to de-

termine the economic usability of the method.

Among chemical processes developed that involve use of a solvent is the Bradley process, in which the manganese is leached from the ore by ammonium sulphate. Other processes use a variety of solvents, including hydrochloric acid. Sulphatizing has been suggested and tested. In the laboratory experiments some of these processes have been successful in removing the phosphorus and silica and in resulting in a product that contains as high as 63 to 68 per cent manganese and 6 to 8 per cent iron.

Manganese ore deposits have been opened up and operations started at mines in Virginia and in Georgia.

\$4,000,000 SEWER BONDS VOTED

Dallas Plans to Rehabilitate System

Dallas, Tex.—The city of Dallas voted a \$4,000,000 bond issue to extend and improve its sanitary sewer system and to build a new disposal plant, funds from the issue to be expended in conjunction with \$1,000,000 provided for sewers in the Ulrickson bond program of 1927. Plans contemplate the enlargement of existing mains and the construction of new ones, together with the building of a disposal plant designed to free the Trinity River and other city streams of pollution. The Ulrickson committee which drafted a \$23,900,000 bond program approved in 1927, called attention to the city's need of improved sewage disposal and advised another bond issue or tax levy to complete the work then started, funds to be made available only when plans had been drafted for a complete rehabilitation of the system. Water Commissioner John M. Fouts started the work with funds from the Ulrickson bond issue and proceeded with plans for its completion, drawings and estimates being prepared in the office of the city engineer, in collaboration with consulting engineers. They were approved by a citizens committee headed by Dr. J. F. Kimball and formed the basis on which the present bond issue was presented to the voters.

A schedule of work to be done includes the following: West bank interceptor, \$50,000; new sewer lines for North, South and East Dallas, \$1,035,000; Greenland Hills district, \$100,000; Five Mile Creek district, \$160,000; Cedar Creek district, \$335,000; Combes Creek district, \$10,000; Kidd Springs district, \$10,000; lateral sewers in all sections of the city, \$500,000; Cadiz Street pumping station, \$35,000; sewage treatment plant, \$1,700,000, and miscellaneous improvements, \$65,000.

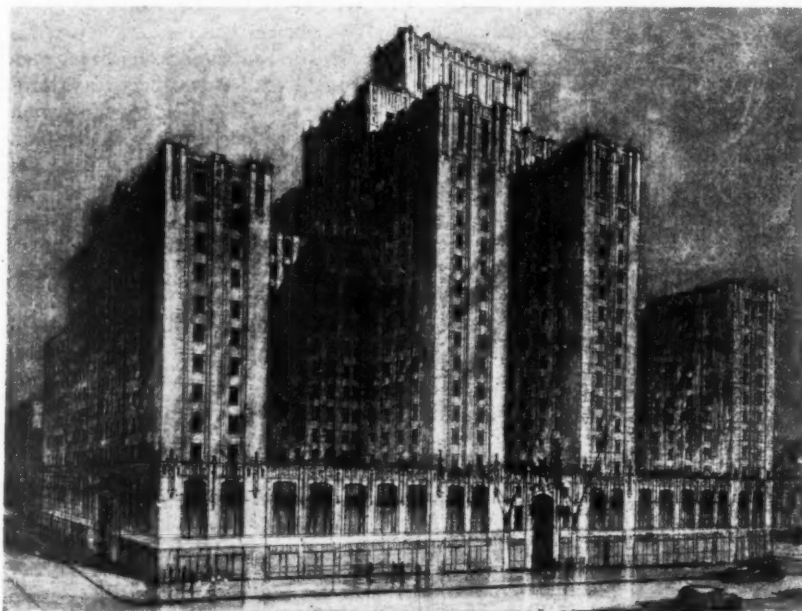
\$8,000,000 Baltimore Hotel Projected

Local Interests Plan 23-Story Structure of 1100 Rooms Embracing 139 Apartment Suites and 500 Hotel Rooms

Construction is expected to be started within the next 60 or 90 days on a 23-story apartment-hotel building in Baltimore, to be erected by local interests at an estimated cost of \$8,000,000. Plans for the structure, which will be located at Howard and Center streets and Park avenue, are being prepared in the office of William Gordon Beecher, local architect. The Carrollton Company has been incorporated to erect the building and it is understood that details of financing have practically been completed. Officers and directors of the company include Herbert A. Wagner, chairman of the board; Harry E. Karr and C. Wilbur Miller, vice-presidents, and James Carey Martien, secretary and treasurer. With the officers, the directorate also includes William J. Casey, W. Frank

Roberts, Henry Lay Duer, Glenn L. Martin and Leon C. Coblens.

The central tower of the building will be 23 stories, central wings 17 stories and the main section of the structure, 12 stories. The building will cover a site of 60,000 square feet and will contain a total of 7,000,000 cubic feet. A main entrance will be provided on Center street and other entrances on Park avenue and Howard street, while a corridor will extend through the structure from Howard street to Park avenue. On the Howard street side there will be an assembly room to seat 2000, practically surrounded by private dining rooms. Space will be provided on the ground floor on the Center and Howard street sides for shops and on the Park avenue side there will be an entrance to a 250-car garage. The building is expected to be completed by September, 1931.



New Hotel to Be Erected in Baltimore by the Carrollton Company.

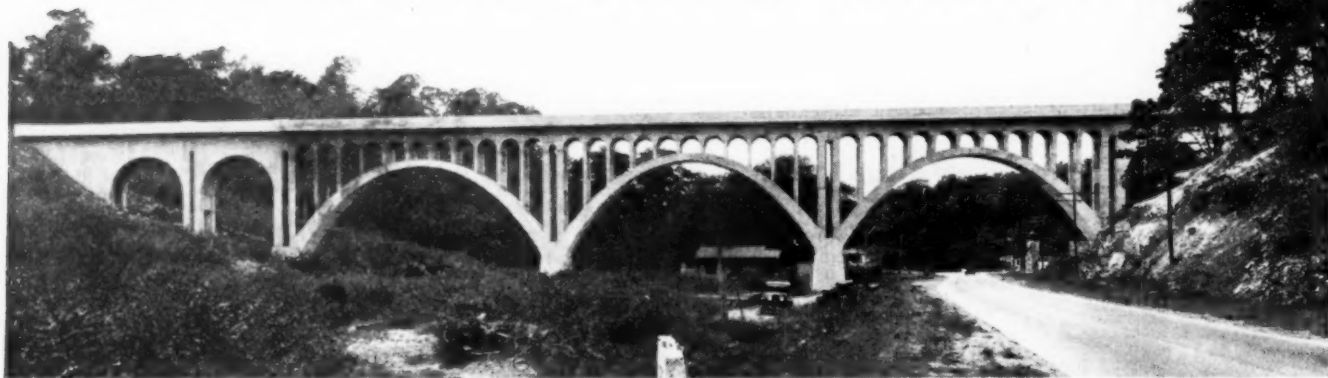
15-Story Tulsa Building Planned \$500,000 Plants for Chattanooga

Tulsa, Okla.—The Real Estate Investment Corporation, recently organized by Tulsa business men with Giles Pennick, president, plans to erect 15-story office building on a site acquired from Mark H. Finley of Los Angeles, Cal. A 99-year lease has been obtained on the property which has a frontage on Fourth street of 75 feet, between Boston and Main streets, with a depth of 80 feet toward Third street. M. L. McCune, Tulsa, is the architect.

Chattanooga, Tenn.—Plans are being made by the Union Carbide and Carbon Corporation, New York, to build two plants here at a cost of \$500,000, one of which will be operated by the Linde Air Products Company and the other by the Prest-O-Lite Company, Inc., subsidiaries. Construction is expected to begin as soon as plans can be completed and contracts awarded, with a view to having both plants ready for operation by September 15.

\$3,300,000 Rail Line in Jackson County, Mo.

Completion of 13.28-Mile Single-Track Road Gives Kansas City Southern a Short Unbroken Route from Kansas City to Sabine District Ports on the Gulf



Concrete Viaduct Over U. S. Highway 50. This Structure Is Similar to Flying Field Road Viaduct.

WITH the opening several months ago of the \$3,300,000 line of its subsidiary, the Kansas City & Grandview Railway Co., the Kansas City Southern Railway Co. now has an unbroken line and what is said to be the shortest route from Kansas City to the Sabine district ports of Port Arthur, Beaumont and Orange, Texas, and Lake Charles, La. The new line, a single track, on which work was started in August, 1928, extends south 13.28 miles in Jackson County, Mo., from Leeds to Grandview, located on the summit separating the Big Blue and Little Blue river valleys.

In constructing the new railroad, which closes a gap formerly existing in

the route to the Gulf, grading assumed major proportions, necessitating 1,000,000 cubic yards of common excavation and 450,000 cubic yards of solid rock excavation. To complete all this grading by September, 1929, the work was divided by the general contractor among a number of sub-contractors. Earth removal was made with elevating excavators and transported in crawler-type wagons; rock excavation was made by blasting and power shovels, removal being accomplished by trucks, crawler-type wagons, or narrow gauge railway.

Fills were placed on a one and a half to one slope, with a crown width of 20 feet below a 20-foot embankment height and with a 22-foot crown width above the 20-foot height. Material from the cuts was used in the fills with exception

of those at each end of the line, for which it was necessary to borrow. Cuts were made with a 26-foot slope at grade, earth excavation being taken out on a one to one slope from the base down to solid rock.

The largest fill, containing 405,000 cubic yards of material and with a maximum height of 65 feet, is located on Miles 11 and 12 at the north end of the line. Drainage from Round Grove Creek is carried under this fill by a 30-foot concrete arch culvert containing 3800 cubic yards of concrete. Near this fill is also located the largest cut, involving 119,000 cubic yards of excavation, 71,000 cubic yards of which was solid rock.

Construction of culverts and bridges, all so arranged as not to hinder the grading work, was sub-let to one con-



Completed Viaduct Over Flying Field Road. Concrete Handrail Adds Materially to Appearance of This Structure, Which Was Designed to Harmonize With Its Surroundings.

tractor, who did the necessary excavating, made the concrete pipe at location, and placed the pipe and the head walls. Openings provided by these culverts vary from a single 24-inch diameter pipe to two 66-inch pipes. The largest project of this nature, located on Mile 18, consists of a double 66-inch pipe 360 feet long.

Principal structures on the line are reinforced concrete viaducts over U. S. Highway 50 and over Flying Field Road, and a steel viaduct on Mile 14. At each of these locations it was necessary to provide for a roadway and waterway, the type of structure selected being considered the most economical permanent roadway, as there was no excavation available for filling.

Of these three viaducts the steel structure is the largest. It is 875 feet long over the valley of a small tributary of the Big Blue River, and is 110 feet above the natural ground level at its highest point, and consists of deck plate girder spans on steel towers, with concrete piers and abutments. The girders support a concrete slab carrying the ballasted roadbed. Excavation for the ten piers, three

of which was constructed in six weeks, contains 2200 cubic yards of concrete and 1000 tons of structural steel. It has a concrete walkway and a pipe handrail on each side.

The Flying Field Road viaduct is the next largest structure on the line. Built of reinforced concrete throughout, it is 65 feet above the stream, and is 504 feet long with one 95-foot and two 78-foot 9-inch open spandrel arch spans, and approaches each consisting of a 31-foot girder, two 31-foot 9-inch arches and one 34-foot arch. On this project a power shovel excavated to rock, upon which all footings are founded. Concrete was mixed at a plant equipped with automatic material measuring devices, elevated by means of a 120-foot steel tower and flumed to various parts of the structure through counterbalanced chutes.

Before the centering for the main spans was placed, concrete was poured in the piers up to the haunch or springing line of the arch rings, each of which was divided into five sections for pouring. The top section, about 30 feet of the ring, was poured first; then the two

Track carrying structures, with exception of a treated pile trestle over the Municipal Farm Spur on Mile 11, are all of concrete and steel, with ballast decks. Six of the overhead structures carrying highways are built of timber and three of concrete and steel.

Construction of track involved use of 127-pound rail on 7-inch by 9-inch by 8-foot treated ties, 3000 to the mile. A 12-inch surface of sand under the ties will be replaced by rock ballast when the roadbed becomes compacted. On the two one-mile passing tracks, two emergency spurs, and one industry track siding, 85-pound relay rail was used. Mile posts, rail rests, and other markers are all of concrete.

Contract for all grading, culvert and bridge work was let to the List Construction Co., Kansas City, Mo. Laying of track, surfacing and telegraph line construction was handled by forces of the Kansas City & Grandview Railway Co. A. N. Reece, chief engineer of the Kansas City Southern Railway Co., directed the entire project, which was supervised by E. M. Basye, resident engineer, and P. J. McCarthy and H. E.



Steel Viaduct on Mile 14, Complete Except for Handrails, Ballast and Track.

of which rest on piles and the others on solid rock, was roughed out by a dragline. Concrete for the piers and abutments was mixed at each end and placed by chutes. Steel was brought to the north end of the structure over the new line, which had been completed to that point, and erected by a derrick car. A railway motor car with a special hopper trailer transported concrete for the ballast deck slab over a temporary track from the mixer and unloading hopper at the north end of the viaduct. Quick-hardening cement was used in this concrete. This viaduct, the steel and slab

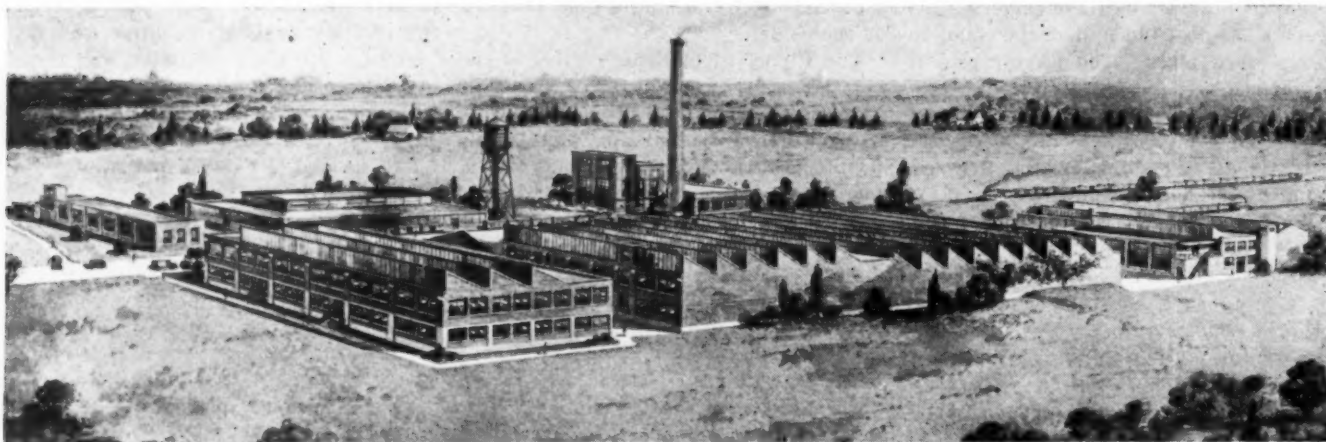
lower sections adjoining the piers were placed simultaneously, and the two key sections poured last. Continuous pouring of certain sections, for a 48-hour period, necessitated by placement of the construction joints, required working at times at zero temperatures. In such cases all aggregates and water were preheated and the concrete, after placing, was protected by canvas and salamander heaters.

The viaduct over U. S. Highway is of construction similar to the Flying Field Road structure, except that it has two less approach arch spans.

Durham, assistant engineers. Ash, Howard, Needles and Tammen, Kansas City, and C. S. Heritage, bridge engineer of the Kansas City Southern, were the designing engineers.

Subcontractors were: List & Bagnell Construction Co., List & Weatherly Construction Co., C. J. List Construction Co., List Construction Co., Carrothers-Huggins, Inc., J. W. McMurry Contracting Co., McGuire Brothers, all Kansas City; Allhands and Davis, Joplin, Mo.; E. L. Martin, Dallas, Texas; and Yale & Reagan Co. and Benson-Kaiser & Co., both St. Louis.

Completing Transparent Paper Plant near Fredericksburg, Va.



The \$1,000,000 transparent paper plant of the Sylvania Industrial Corporation at Fredericksburg, Va., will probably be placed in operation this month. The product to be manufactured mainly will take the place of foreign material now imported in large quantities, and for that purpose the company acquired exclusive license from the European patentees. The plant is being erected by the Hughes-Foulkrod Co., Pittsburgh and Philadelphia. The copyright architect's perspective is from the Ballinger Co., Philadelphia, architects and engineers on the plant.

INCREASED PRODUCTION OF ALUMINUM IN 1929

Rolling of Structural Shapes Among New Developments

New aluminum produced in the United States during 1929 amounted to 225,000,000 pounds, valued at \$51,864,000, as compared with 210,000,000 pounds, valued at \$47,899,000, produced in 1928, according to the Bureau of Mines. The principal producing plant was that at Massena, New York, where approximately 42 per cent of the metal made in the United States was produced. Other works are at Niagara Falls, N. Y.; Alcoa, Tenn.; and Badin, N. C. The South produces all of the domestic ore (bauxite) from which aluminum is made. Imports of aluminum metal, scrap, and alloy in 1929 were 28 per cent more in quantity than in 1928.

Arthur V. Davis, chairman of the board of the Aluminum Company of America, states that the two most interesting developments in the aluminum industry during 1929 were: Completion of a manufacturing technique that made possible the rolling of large structural shapes from high strength alloys, and adoption of aluminum as a new decorative and utility metal by architects.

Aluminum shingles, roofing, and corrugated sheets which are standard products of growing importance, have been joined in this field by ornamental castings for crests, spandrels, cornices, finials, and other metal accessories. Several recently-constructed office buildings carry from fifty to a hundred tons of aluminum mainly in the form of cast

spandrels or ornamental exterior wall plates and sills. In aviation, the average amount of aluminum per plane in 1929 increased greatly over preceding years. Other products of aluminum reflected in their volume the high production scales of the fields to which they go, including electric light and power, pigment for paint, cooking utensils, household machinery, furniture, and chemical industries.

Important Meeting of Natural Gas Interests in New Orleans

New Orleans, La.—The Western Natural Gas Convention, sponsored by the Natural Gas Department of the American Gas Association, will hold its twenty-fifth annual meeting beginning May 5 in this city. Because the natural gas industry is expanding by leaps and bounds, representatives at the four-day convention sessions will discuss many important topics. Developments have taken place so rapidly recently that new conditions continuously confront operating and holding companies. Some of the outstanding leaders in the industry will give the benefit of new-found information to the convention. Plans are being made to take care of 1500 representatives. The convention headquarters will be at the Hotel Roosevelt, and in charge of E. J. Stephany, Dallas, Texas, secretary of the Natural Gas Department. Addresses will be made by B. J. Mullaney, president of the American Gas Association; Alexander Forward, managing director, and H. C. Morris, Dallas, chairman of the Natural Gas Department.

COTTON CEMENT BAGS PREFERRED

250,000,000 Cloth Sacks Used Annually by Cement Industry—60,000,000 Square Yards of Cotton Cloth Required Each Year.

Widespread preference for cotton cement bags is indicated in preliminary results of a special survey undertaken by the Cotton-Textile Institute. More than half the reports so far received from highway engineers and heads of public works departments in cities throughout the country state that cotton bags are specified for all cement required in their building programs this year. Advantages claimed are that cloth containers are easy to handle, are cheap for extended orders, entail small loss from breakage and withstand rough handling.

It is estimated that 250,000,000 cloth sacks are used annually by the cement industry. For replacements approximately 60,000,000 bags, equivalent to 60,000,000 square yards, are required annually.

The Portland Cement Association estimates that more than half the cement used in the United States each year goes into construction of highways and public and commercial buildings. According to their estimates highway construction and paving account for approximately 27.5 per cent of the annual consumption of cloth cement bags. Building construction requires approximately 26 per cent.

Under present practices the contractor

who purchases cement in large quantities pays 10 cents each or 40 cents per barrel for cotton sacks in which such shipments are made. Computing the allowance granted by the cement shipper for return of the sacks in good condition and considering that the average sack is good for at least eight trips it is estimated that larger users of cement may save as much as \$25 per thousand bags by specifying cotton containers.

\$500,000 Medical Building

Richmond, Va.—A group of Richmond medical men have organized the Medical Science Corporation to erect a \$500,000 6-story medical building at 104 West Franklin street on a site owned by J. Luther Moon. Space will be provided on the ground floor for four stores, while the upper stories will be devoted to offices. Otis K. Asbury, Richmond, is the architect.

South Has World's Largest Maker of Bottle Washing Machines

By M. H. NUSSBAUM, Bainbridge, Ga.

To a limited extent people have known that in the South are to be found some of the world's largest producers of cotton goods, of rayon, tobacco goods, lumber, paper, insulating building board, and refined oils. But the public has not been aware of the extent of the diversified manufacturing carried on in the South and very few know that the South leads the world in the manufacture of bottle washing machinery.

The Miller Manufacturing Co., of Bainbridge, with sales offices in New York and Chicago and with branch factories in London and Paris, are the world's largest makers of bottling equipment, devoted exclusively to the manufacture of bottle washing and sterilizing machinery for carbonated beverages, dairies or any industry requiring the cleaning and refilling of bottle containers. The product of the plant is sold in every state in the Union, in every province of Canada and throughout every civilized country.

It is an efficient machine, built upon the discovery by Charles Alvin Miller of a new principle in bottle washing and sterilization. This principle is now known as the hydrostatic method of bottle washing and accomplishes its

work of giving a sterile bottle by pumping into it a strong solution of caustic soda. A more recent development of the Miller company combines hydrostatic soaking with a complete bristle brush washing system, entirely automatic, requiring but one pair of unskilled hands to operate. It thus combines the two principles of bottle cleaning and sterilization into one machine. The washer may be used independently or in connection with syringers, fillers, labelers and crowners, making possible one continuous operation. The system starts to function with the placing of the used bottle, neck down, on the endless chain of cups; it passes through six cleaning operations — pre-rinsing; hot caustic washing inside and outside; revolving brushes which automatically thrust upward into the bottles; re-sterilizing; temperate rinse; and the bottles on the endless chain are given a final cold rinse, and from this point Miller conveyors connect directly with fillers if desired.

Exhibition of the Miller hydrostatic bottle washer and sterilizer, at the recent exhibit held in Atlantic City by the National Association of Bottlers of Carbonated Beverages, attracted great in-

terest. One feature evoking favorable comment was the fact that this is the first time in bristle brush-cleaning methods that any provision has been made for re-sterilization after brushing. In the brush-hydro washer the bottles are hydro-sterilized, brush-washed, and then again hydro-sterilized after the brushing operation.

The capacity of the machine ranges from 1000 to 7200 sterile-cleaned and brushed bottles per hour. Speed of the entire system, increasing production, thoroughness in insuring clean, sterile bottles, fully automatic operation saving labor expense—all these result in appreciable economies.

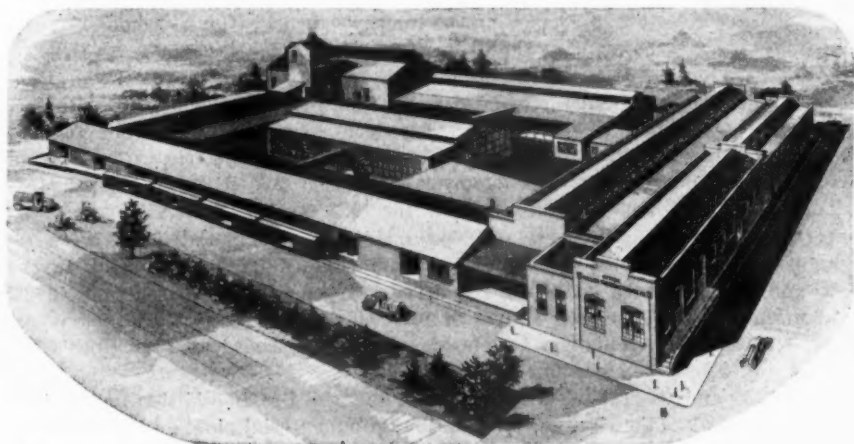
Manuals on Kiln Drying and Gluing Wood

The Forest Worker states that after years of experiment and experience the Forest Products Laboratory is bringing out, with increasing frequency, useful complete manuals for handling forest products. Two years ago the results of 20 years' accumulation of information about pulping were brought together in Department of Agriculture Bulletin 1485, the Suitability of American Woods for Paper Pulp. In the last two years three manuals that cover in a comprehensive way the seasoning and gluing of wood have been prepared at the laboratory. In addition a tabular statement of the strength of North American woods, the outcome of tests made at the laboratory, has been published.

The most recent of the manuals, the Gluing of Wood, by T. R. Truax, Department Bulletin 1500-D, provides information for improvement of shop practice in plants that glue wood. It describes properties of glues used in woodworking, gives methods for testing glues, and discusses the preparation of glues for use and operations involved in gluing wood, also methods of correcting gluing defects.

The Kiln Drying Handbook, Department Bulletin 1136-D, by Rolf Thelen, is a manual for the operation of dry kilns for seasoning lumber, with suggestions for drying other partly manufactured wood specialties. Drying schedules and seasoning specifications with special schedules for aircraft lumber, bent stock, plywood panels, etc., are included.

In general the information in these manuals is based on experimental work at the Forest Products Laboratory, Madison, Wis., and has been tested in commercial practice. The manuals are practical helps to the manufacturer, embodying scientific and commercial experience and test results, and are aids to forest conservation. Copies may be obtained from the Department of Agriculture, Washington, D. C.



Main Plant of Miller Manufacturing Co., Bainbridge, Ga.

Miniatures of Southern Cities

UNDER this heading the MANUFACTURERS RECORD continues publication of the series of thumb-nail sketches of Southern cities, indicating in brief their resources and presenting some of their outstanding accomplishments in 1929.

Valdosta, Georgia



By F. W. WEBB, Chamber of Commerce, Inc.

ESTIMATED population of Valdosta is 17,000. The outstanding achievement in 1929 was construction of the 9000-foot drainage ditch. It is believed this ditch rapidly carries away more than two-thirds of the surface water. Completion of further plans will practically eliminate malaria from the city.

Noteworthy was the activity of the Georgia Fertilizer Co., which had its most successful year.

This city is classed as a strictly American Plan Open Shop community, as local labor is at least 99 per cent native born.

mits, being surpassed only by Baltimore and Hagerstown.

At present there is but one union organization in the city, the brick layers union. The city is a typical American Plan Open Shop community.

Outstanding achievements of Salisbury for the year 1929 were: Remarkable industrial growth; substantial building growth; perfection of plans for a \$300,000 high school, and reduction of fire insurance rates on dwellings.

El Paso, Texas



© Seenie Airways, Inc.

By GERALD F. PERRY, Chamber of Commerce.

DEVELOPMENT of El Paso, a city of 120,000 population, has been decidedly industrial. An underlying factor in the 1929 advance was completion of a 220-mile natural gas pipeline from Lea County, New Mexico, to provide gas for industrial and domestic use. At the beginning of this year the Pasotex Petroleum Co. had been operating five months. The Texas Company's refinery went into production soon after January 1, and construction of the Nichols Copper Company's \$4,000,000 refinery, with a rated annual capacity of 100,000 tons, was practically completed by January 1.

Completion of the copper refinery necessitated investment of \$5,000,000 for a new electric plant and substations by the Stone & Webster interests. Natural gas is used by this power plant, as well as by the American Smelting & Refining Co., which operates the largest custom smelter in the world; it is used also by the Southwestern Portland Cement Co., the brick plants and several smaller industries.

Home building activity was particularly marked. Construction started late in the year on the 17-story Bassett Tower, plans being completed about the same time for the 20-story Hilton Hotel. The El Paso Electric Co. completed a concrete bridge over the Rio Grande River to Juarez, Mexico. Building permits for 1929 totaled \$4,328,815.

Mining was active during the year. Cattlemen were reported to be in good shape financially, ranges being in the best condition for several years. The tourist trade in El Paso was valued at \$2,000,000.

This city is classed as a strictly American Plan Open Shop community.

Included in El Paso's industrial life, in addition to activities listed, are lumber and building material plants, metal working, meat and meat products, textile and garment, flour, dairy products, candy, and macaroni plants.

Salisbury, Maryland



By H. A. BEACH, Chamber of Commerce, Inc.

SALISBURY has a population of 12,085 and is located on the Wicomico River, which is navigable from the Chesapeake Bay to the city's harbor.

This city's most important industry is manufacture of shirts and underwear, the two largest shirt factories in the South being located here, the Jackson & Jackson Co., and the Star Shirt Co. Five other shirt manufacturing concerns also are located in Salisbury. Of next importance industrially is manufacture of fertilizer, followed by baskets and crates, and general lumber materials. The 58 local manufacturing concerns report an estimated gross business of \$10,970,082 and an estimated annual payroll of \$2,806,261 for the 3293 workers. Salisbury is rapidly developing as a wholesale and jobbing center, having 39 wholesalers doing an annual estimated gross business of \$6,960,667.

Salisbury ranked third in Maryland in 1929 building per-

Columbus, Mississippi



By R. E. JOHNSTON, Columbus Chamber of Commerce.

POPULATION of Columbus is estimated at 16,000.

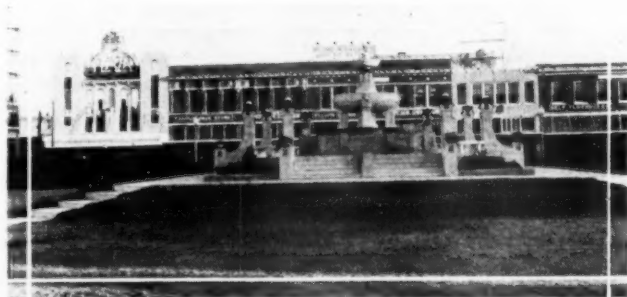
In this city is located the largest brick plant in the state and one of the largest in the South, with a daily capacity of 125,000 brick. Lowndes County, of which Columbus is the county seat, has two cheese factories with a combined daily capacity of 70,000 pounds of milk. Within a radius of 30 miles of the city is more than 200,000,000 feet of hardwood timber available for manufacturing and other purposes.

Doubtless the most significant undertaking of the year was employing a dairy specialist to develop the county's dairy industry and to assist farmers in dairy problems. Business firms of the city provided funds for this purpose.

Columbus is an American Plan Open Shop community. There is a plentiful supply of white and negro labor, and the city is free from strikes and labor disturbances. New industries are granted tax exemption for five years.

Building permits for the year totaled \$815,029.

Paris, Texas



By B. F. JOHNSON, Chamber of Commerce of Lamar County.

PARIS has an estimated population of 18,600.

The outstanding recent addition to the city's industrial life is the \$150,000 plant now being constructed by Swift & Co. This plant will fatten, dress and pack 15,000 head of poultry a week and will make 30,000 pounds of butter weekly, as well as handle several carloads of eggs.

Building permits for 1929 were \$306,040.

Among the 51 plants of Paris are a garment factory employing 200; two box and crate factories employing about 300; two cotton seed oil mills employing 100 each; a candy factory employing about 100; a vinegar factory and Swift & Co.'s new plant.

All the Paris industries operate under Open Shop conditions. Of course, the railroads are unionized.

Most important of the activities of the Chamber of Commerce was a campaign for dairy development and securing a market for milk products.

Rome, Georgia



By W. H. FOSTER, Rome Chamber of Commerce.

ROME, a city of 22,500 population, is what is termed a diversified industrial community. Products manufactured in this community include stoves, agricultural implements, trucks, wheelbarrows, drag and wheel scrapes, turbine water wheels, meter boxes, dye machinery and textiles. Among the textiles are rayon yarn, tire fabric, duck, denims, canton flannel, sheeting, and cotton hosiery.

One of the largest furniture factories under one roof is in Rome. The city melts more iron than any other Georgia town. Brick, tile and sewer pipe are made from local shales.

Approximately \$4,000,000 was expended for new building construction in Rome and its immediate suburbs.

The starting of operation of the new plant of the American Chatillon Corporation was the most significant event of 1929.

Manufacturing plants in this area have been running practically full time during the year and the industrial outlook for 1930 is bright. The city is classed as Open Shop.

Del Rio, Texas



By H. WREN, Chamber of Commerce.

THE main industry in this section is sheep and goat raising and cattle raising.

Del Rio has an estimated population of 15,000 and an incorporated area of 2880 acres. It has three large banking institutions, a country club and amusement houses. Ten miles of streets are paved with asphalt.

A folder issued by the Chamber of Commerce emphasizes the fact that the city has a delightful winter climate, is the largest sheep and goat market in the United States and also the largest inland wool and mohair market.

Some Major Projects of the Week

Under the Construction Department elsewhere in this issue will be found a complete list of the week's activity in the South and Southwest, including hundreds of industrial, mining, power, transportation, building construction, and financial projects. It presents a panorama of development requiring materials, equipment and machinery of almost every description.

\$8,000,000 EXPANSION PROGRAM ANNOUNCED

Tennessee Coal, Iron and Railroad Company Plans Extensive Improvements During Year at Birmingham.

Birmingham, Ala.—Marking the first step in its 1930 improvement program, the Tennessee Coal, Iron and Railroad Company plans extensive improvements at its Fairfield plant during the current year, according to H. C. Ryding, president, which will involve an expenditure of from \$8,000,000 to \$9,000,000. Authorization for the improvements was recently made by the finance committee of the United States Steel Corporation, New York, parent organization of the local company. The proposed work is expected to be completed within a period of 10 or 12 months and will include construction of an additional 150-ton open hearth furnace; alterations to the present 45-inch blooming mill, including construction of an additional soaking pit; installation of a rolling mill for the production of strips for rolling into sheets, and alterations and additions to the present sheet mill.

All specifications for the improvements have been completed, it is announced, and a large force of workmen will commence construction at once, building material to be supplied for the most part locally. While no official statement has been made regarding further improvements, it is believed in some quarters that this is the first of a series of appropriations to be made by the United States Steel Corporation for carrying out a big development program in the Birmingham district which may ultimately involve an outlay of \$25,000,000. It is pointed out that an important phase of future betterments will probably mean the practical rebuilding of the rail mills at Ensley, the modernization to be carried out step by step.

\$2,000,000 Rail Improvements

New Orleans, La.—According to information by the Louisiana and Arkansas Railroad, which has closed a trackage agreement with the Missouri Pacific Railroad Company, under the terms of which the latter will use the L. and A. tracks and terminals between Baton Rouge and New Orleans, an expenditure of \$2,000,000 will be made on the tracks between the two cities. The arrange-

ment will give the Missouri Pacific entrance to New Orleans east of the Mississippi River and the improvement program will involve 80 miles of trackage.

Foundation for \$2,000,000 Building

Kansas City, Mo.—The Long Construction Company, Kansas City, has been awarded contract for the foundation of a \$2,000,000 building to be erected by the Kansas City Power and Light Company. The building will be 30 stories surmounted by a tower. Hoyt, Price & Barnes, Kansas City, are the architects.

BIDS ON \$4,000,000 UNION STATION

Work on Tulsa Project Soon to be Under Way.

Tulsa, Okla.—As a preliminary to the construction of the new \$4,000,000 union station here, the St. Louis-San Francisco Railway Company, F. G. Jonah, chief engineer, and J. W. James, traffic manager, St. Louis, has awarded contract to Reed & Lowe, Tulsa, Memphis, Birmingham and Atlanta, for the depression of the Frisco tracks for new freight lines on the north side of the present tracks from Denver avenue to the east of the proposed location of the union station. The Tulsa Union Depot Terminal Company, of which J. E. Hutchinson, St. Louis, is president, will award contract April 21, it is said, for erecting the station.

A bond issue of \$1,250,000 was sold by the city last summer for the elevation of streets and for other improvements in connection with the project. Work on Boulder avenue is progressing rapidly and it is expected the street will be open to traffic by the last of May. The Cincinnati avenue elevation is expected to be ready for traffic by July 1, and the subway on Peoria avenue beneath the Frisco tracks, for which Reed & Lowe are contractors, has practically been completed. In addition to the Frisco, other participants in the Tulsa Union Depot Terminal Company include the Atchison, Topeka & Santa Fe Railroad Company, H. W. Wagner, chief engineer, Topeka, Kans., and the Missouri-Kansas-Texas Railroad Company, F. Ringer, chief engineer, St. Louis.

\$2,500,000 UNION STATION

Plans Approved for Oklahoma City Project.

Oklahoma City, Okla.—City council recently approved plans for a \$2,500,000 union station to be erected here by the St. Louis-San Francisco Railway Company, F. G. Jonah, chief engineer, St. Louis, and the Chicago, Rock Island & Pacific Railway Company, C. A. Morse, chief engineer, Chicago, and work is expected to start this month, according to Ed Overholser, president of the Oklahoma City Chamber of Commerce. Plans call for a station 360 by 222 feet. Two platforms 1300 feet long and one of 1000 feet will be constructed in the rear of the station and covered by sheds, while a subway will lead from the lobby to the tracks, the latter level being reached by stairs. The building will be of Moorish design and constructed of white Bedford limestone. A freight house will be built on an adjoining block.

\$1,000,000 Physicians' and Dentists' Building Planned

Atlanta, Ga.—Following a fire which destroyed the 4-story Doctors' Building here at Peachtree and Pine streets, Jesse Draper, of the Draper-Owens Company, announced the construction of a new building exclusively for physicians and dentists. The structure will be 100 by 100 feet, occupy a site fronting 106 feet on Peachtree street, 179 feet on Crawford Long street and 116 feet on Alexander street, at present owned by Dr. Floyd McRae, who plans to sell it to a syndicate. The building will cost about \$1,000,000, it is said, and will probably be erected by the Southern Ferro Concrete Company, Atlanta.

2,000,000-Bushel Elevator Addition

St. Louis, Mo.—The Missouri Pacific Railroad Company, E. A. Hadley, chief engineer, has awarded contract to Edwin Ahlskog, Chicago, to erect a concrete addition to the grain elevator here for a storage capacity of 2,076,000 bushels, making the total capacity of the elevator more than 4,000,000 bushels. New construction will also include conveyor legs, two additional scales, a small carpenter shop and offices. The cost of improvements is estimated at \$700,000.

IRON, STEEL AND METAL MARKET

Steel Doing Better Than Was Recently Expected

Pittsburgh, April 14—[Special.]—Steel ingot production in the first quarter, estimated in last report at 12,250,000 tons, was just a trifle over that amount. The official report of Bessemer and open-hearth production in March, since issued, shows only 2.7 per cent decrease from the February rate, which is less than was indicated in various trade reports. Altogether, steel has been doing somewhat better than has been pictured in some quarters, and it is now doing better than was being expected 30 days ago.

Three things have adversely influenced trade sentiment. First, after reaching a certain rate at the middle of February, steel production declined when according to all seasonal precedent it should have continued increasing. Second, there has been very little backlog business on mill books as compared with the same time last year and year before. Third, steel activity has appeared too good to last, being at an exceptionally high relationship with trade in general. As to the first point, no adequate explanation has been offered, but as the decrease was small there is not much to bother about. As to the second point, of course buyers would not make forward commitments as they did last year and year before, when they see that there is ample mill capacity and prices have been showing a weakening tendency. As to the third point, uneasiness may be more or less justified, for some of the present flow of steel may in a sense be a survival of the old momentum. It is remarked that with car loadings running light railroads are unlikely to buy cars as they have in the last six months, and some orders six months old are not yet completed.

Steel makes a much better showing as a reflection of general trade activity than it does as to its own prosperity, because capacity has been increasing somewhat sharply. As nearly as prospects can now be seen, this year's total steel production should be under only 1929 and 1928, exceeding production in all preceding years, which means therefore only a moderate backset for the consumers. Productive capacity, however, increased 10 per cent during 1926-7-8, as shown by official reports, while adding an estimate for last year there is about 15 per cent increase in four years and much new construction has been in progress or definitely planned, indicating say 5 per cent further increase this year. This means that a

given tonnage demand engaging 90 per cent of capacity existing January 1, 1926, would engage only about 74 per cent of capacity at the end of this year. In the past the steel industry got along very well on a 90 per cent demand but had too much competition, and weakening prices, at under 80 per cent.

Production in the last fortnight has been at nearer 80 than 75 per cent, the rate being practically stationary. Fears are entertained that production will fall off but there is little visible likelihood of that before the midyear period. The structural fabricating shops are well booked for several months, except the small shops. New business has been rather light for a month and a half but the order book has not diminished a great deal, and much new work has come up for bidding in the last two weeks. The freight car shops are comfortably filled to July 1 or a little longer. Agricultural implement factories continue to run at a very high rate and may not curtail until the usual summer period. Rail shipments are very heavy, orders being for delivery up to July 1. The automobile industry has been doing so poorly that it has its future before it, there being no question that it will at least do better.

No further declines in open market prices are noted since last report, but several lines are visibly weak, and lower quotations may soon be recognized as the open market on bars, shapes, plates and sheets. Semifinished steel is nominal at \$33 for billets, slabs and sheet bars, Pittsburgh, Youngstown or Cleveland, to which the market dropped in January. Sheet and strip mills cannot afford to pay this price in view of declines in their products.

Overproduction Continues to Feature the Metals

New York, April 14—[Special.]—The overproduction of metals has again been emphasized the past week. Stocks of slab zinc increased 3330 tons during March to over 94,000 tons, the largest reserves in history, said to have been caused by greater output by the newer processes, such as electrolytic production. The recent sharp decline in tin prices was due to predictions that April production in the Far East would be over 10,000 tons, one of the greatest outputs on record. March statistics on copper are expected to show a further gain in surplus stocks, revealing that output is still too great for consumption. Though lead production in the United States is well geared to demand,

the world situation is otherwise and prices have been declining because the lead cartel could not agree to make a substantial cut in output.

Declining prices have again been a feature. Lead was cut \$5 per ton, the New York price becoming 5.50c, which it was three weeks ago, a new low for the past eight years. The Middle Western price fell to 5.40c per pound, East St. Louis, which is lower than three weeks ago.

Zinc was sagging after stiffness the previous week, the unfavorable March statistics having changed the trend. Though tin fell the first day of the week it was upward bound later, being one of the few exceptions where prices have risen.

Declines in refined platinum prices have been very severe, or to \$47 per ounce, the lowest in many years, if not for all time. Quicksilver prices have fallen \$4 per flask to \$115, with offers to sell as low as \$110, f. o. b. California. Silver prices have been fairly steady at around 42c per ounce. Though copper prices are unchanged at levels which have prevailed for almost a year, prices of standard copper have been falling on the London Metal Exchange.

Business has not been brisk among any of the metals. Lead demand has been moderate, though became quieter after the break in prices which impaired confidence for the time being. Zinc inquiry was the best in weeks until the March statistics were issued early in the week, when demand flattened out. Tin consumers have shown little interest, either when prices were low or when they were higher. Sales of copper were slightly under the preceding week.

Industrial activity still leaves much to be desired. Operations in the steel industry declined about one per cent for the week, the pace being about 75 per cent of capacity as against 96 per cent at this time last year. Automobile production increases slowly, though specifications for raw materials are better. Building operations are on the mend. Public utility companies and electrical equipment manufacturers are the best consumers of the non-ferrous metals, particularly of lead and copper.

It is reported that copper producers have been discussing the plan of forming a pool to finance the large reserves of refined copper. Such a pool had been formed in 1921 when these reserves were close to 400,000 tons, as against existing stocks of 250,000 tons today. In 1921 \$40,000,000 in bonds were floated to finance this copper, the bonds being retired gradually as the copper was sold. Though denial has been made that such

a pool will finally be consummated, it at least calls attention to the growing difficulty for some of the producers to carry such large reserve stocks. One large copper producer is said to be holding \$18,000,000 worth of copper.

Many believe that March copper statistics will be the last of a series of unfavorable reports and that from April on there will be shrinkages of surplus stocks. Many maintain that there is bound to be a decided improvement in copper business within the next three months, which will change the complexion of the markets entirely. There is still talk of a coming reduction in copper prices. The middle of this month is the time set by some observers for the decline, based on the fact that copper will have held at present prices for a year on April 16 and that the date will be an appropriate one for a reduction; also on the fact that March statistics will be unfavorable.

By the end of the week zinc was selling at 4.90c per pound, East St. Louis, as against an asking price of 5c at the start. Until March statistics were issued business was brisk, with sales the largest in ten weeks. The price of zinc ore in the tri-State district is \$35 per ton, a reduction of \$2 per ton.

Lead business has been quiet but producers are satisfied, for their production is sold quite a distance ahead. Were the American lead producers independent of world conditions, prices would be considerably higher.

Tin is again subject to erratic speculative tactics. For the past several weeks it has been fluctuating over a runaway of 2 cents per pound. Just now the pendulum is swinging upward. There is apparently no rhyme or reason to its movements. Tin plate production is 85 to 90 per cent of capacity, or about 10 per cent less than at this time last year.

Reducing Surplus Stocks of Pig Iron

Birmingham, Ala., April 14—[Special.]—Pig iron shipments from the Birmingham district are aggregating more than production. Much iron is moving toward the Atlantic coast. Estimate is that 107,800 tons were moved from August to April, and with extension of the low freight rates there will be greater reduction of surplus stock, the probable make practically going to home consumers. Base price in the home territory is \$14, No. 2 foundry base.

Small lot buying predominates in the home territory, several round tonnages having been booked up to a few weeks ago, deliveries now being made on these. Intimation is given that there will be additional orders placed during the sec-

ond quarter by steady melters of iron.

Cast iron pressure pipe melters are consuming much iron, shops operating five days a week with three shifts to the day. Pipe is moving as quickly as manufactured and lettings have been coming in steadily. Other melters are busy and are buying against probable needs in raw material, pig iron, for a few weeks only ahead.

In steel circles there is also steady activity noted. Ingot production is above 90 per cent and finished mills are around 75 per cent. Structural steel fabricating shops are busy, numerous specifications for tonnages ranging up to and a little above 100 tons each being received. The larger tonnages reported some time back are being rushed out in anticipation of big work being likely during the month of May. Sheet and plate are in good demand, the rail mill is working on orders which came to hand during the past four or five months.

Coal mining is slacking up. Coke production is fairly good, though not near possible make. Scrap iron and steel is very quiet.

Announcement that the Tennessee Coal, Iron & Railroad Company will make improvements at its steel mills in Fairfield, suburb of Birmingham, on which more than \$8,000,000 will be expended, means extraordinary development in iron and steel circles of the Birmingham district through the remainder of the year and longer. The

principal part of the program of the T. C. I. is with the sheet mill, an addition to be constructed which will materially increase production. The Gulf States Steel Company is also building a sheet mill at Alabama City, 63 miles from here. The latter is pushing work on a plate mill also, recently completing a blooming mill. The T. C. I. will build an additional open-hearth furnace while the Gulf States Steel has plans for increasing the capacity of its six open-hearth furnaces from 75 to 90 tons and will build a little later two or four more furnaces. Little has been heard here lately of proposed mergers, of the Republic Steel Corporation taking in the Gulf States Steel Company and other industrial companies of this district. The Republic has been very active and is reported to have made overtures to two companies and negotiations are under way.

Quotations for pig iron and iron and steel scrap are as follows:

PIG IRON

No. 2 foundry, 1.75 to 2.5 per cent silicon, f. o. b. furnaces, \$14.00; No. 1 foundry, 2.25 to 2.75 per cent silicon, \$14.50; iron of 2.75 to 3.25 per cent silicon, \$15.00; iron of 3.25 to 3.75 per cent silicon, \$15.50.

OLD MATERIAL

Old steel axles	\$14.00 to \$15.00
Old iron axles	14.00 to 15.00
Old steel rails	11.00 to 12.00
Heavy melting steel	10.50 to 13.00
No. 1 cast	10.00 to 11.00
Stove plate	10.00 to 11.00
No. 1 R. R. wrought	10.00 to 11.00
Old car wheels	10.00 to 11.00
Old tramcar wheels	11.00 to 12.00
Machine shop turnings	7.00 to 8.00
Cast-iron borings	7.00 to 8.00
Cast-iron borings (Chem.)....	12.00 to 13.00

Constructing Big Power Plant on Ouachita River in Arkansas



Work is being pushed vigorously on construction of the Carpenter Dam near Hot Springs, on the Ouachita River, for the Arkansas Power & Light Co. The power plant will have a capacity of 80,000 horsepower. Remmel Dam already in operation, is being expanded from 13,000 horsepower capacity to approximately 25,000 horsepower.

HIGHWAYS AND MOTOR TRANSPORT

Bids Soon on 78 Miles Road and 1500-Foot Bridge

Oklahoma City, Okla.—Important road and bridge contracts soon to be awarded by the State Highway Commission cover a total of 78 miles of highway and a 1500-foot bridge over Red River between Gainesville, Texas, and Marietta, Oklahoma. Bids for constructing the bridge will be opened April 23 and it is anticipated that bids for the road construction will be opened about May 20. The latter will include 5 miles in Cleveland County, 17 miles in Garvin, 7 miles in Carter, 15 miles in Love and mileages in other counties.

\$4,500,000 West Virginia Road Bonds Sold

Charleston, W. Va.—An issue of \$4,500,000 highway bonds has been sold by the State of West Virginia to a syndicate headed by the Chase Securities Corporation, New York, at a price of 100.0055 for \$4,425,000 as 4½s and \$75,000 as 4s. Other members of the syndicate include Kean, Taylor & Company, B. J. Van Ingen & Company, H. L. Allen & Company, Emanuel & Company, all of New York; Ames, Emerich & Company, Chicago; R. L. Day & Company, Boston; Otis & Company, Cleveland; Mercantile Commerce Company, St. Louis; Charleston National Bank, Equitable Company and Mitchell, Herick & Company.

North Carolina Expending \$5,000,000 On Roads

Raleigh, N. C.—North Carolina's road construction activities at this time, including work at present under way and contracts to be awarded at the next regular letting on April 29, represent an expenditure of more than \$5,000,000, exclusive of six or eight projects about completed and two projects carried over to a later letting, according to John D. Waldrop, state highway engineer. The state highway system as of January 1, 1930, covered upward of 8800 miles and by the end of the present biennium is expected to reach 10,000 miles.

Southwest Road Show and School

The Sixth Annual Southwest Road Show and School, Wichita, Kans., will be held February 24 to 27, 1931, inclusive. Nine states, the Bureau of Public Roads, representative from the Republic of Mexico and numerous colleges and universities had exhibits at the 1930 show.

To Continue Simplified Practice in Manufacture of Paving Brick

Simplification of varieties and sizes of vitrified paving brick was unanimously reaffirmed at a committee meeting held in Washington recently. A survey made by the National Paving Brick Manufacturers Association, which

showed that the six recognized sizes of paving brick as adopted last year represented 87 per cent of the total shipments for 1929, was used as a basis for discussion. No other sizes showed sufficient increase in production to warrant inclusion in the recognized list, which was adopted without change for another year.

More Motor Vehicles in Southern States Now Than Reported for Entire Country in 1918

Revenue From Registrations Applicable to Highway Work Amounts to \$90,935,000—
\$150,454,000 From Gasoline Taxes Practically All Allocated to Highway Improvement.

Motor vehicles in the South, according to a compilation by the MANUFACTURERS RECORD from figures issued by the Bureau of Public Roads, numbered 6,967,571 at the end of last year. Based on these figures, the South now has more than 26 per cent of the country's total of 26,501,443 motor vehicles.

The gain in the number of motor vehicles in the United States, including passenger automobiles, taxis, buses, motor trucks, road tractors, trailers and motorcycles, was 8 per cent over 1928, the South's gain being consistent with this percentage. There are now more motor vehicles in the Southern states than were reported for the entire country in 1918 and nearly three times as many as were registered in the United States in 1915. In the last two years there has been an increase of nearly 1,000,000 motor vehicles in the South.

Fees collected in the South for li-

censes, registrations, permits, fines, etc., aggregated \$96,098,000, of which \$90,935,000 was allocated for highway work. In 1928 the total gross receipts for motor vehicle registration amounted to \$86,704,000, of which \$82,239,000 was applicable to highway work. The 1929 figures compared with 1928 show an increase of about \$10,000,000 in motor vehicle receipts and about \$8,900,000 additional for highway improvements. Total revenues received by the entire country in 1929 amounted to \$347,843,000, of which \$323,337,000 was applicable to highway improvements.

In 1929 the amount collected for gasoline taxes in the South reached \$150,454,000, as compared with \$121,792,000 in 1928 and \$105,908,000 in 1927. Practically all revenue from the gasoline tax is devoted to the good roads program of the various Southern states. Total gasoline tax revenue for the entire country in 1929 was \$449,731,000.

MOTOR VEHICLE REGISTRATION REVENUE AND GAS TAX IN SOUTH.

States	Number of Motor Vehicles—		Revenue and Disbursements from Registrations—		Gasoline Tax Revenue 1929	Tax per Gallon (cents)
	1928	1929	Total Gross Receipts 1929	Applicable to Highway Work 1929		
Alabama	269,519	285,533	\$3,736,380	\$3,558,561	\$7,104,000	4
Arkansas	214,931	233,128	4,212,161	4,127,918	6,730,000	5
District of Columbia	126,556	151,450	665,914	1,438,000	2
Florida	352,961	345,977	4,959,129	4,661,581	12,207,000	6
Georgia	318,856	358,905	4,568,209	4,403,384	10,264,000	6
Kentucky	304,231	332,848	5,381,302	5,145,740	7,734,000	5
Louisiana	264,293	280,868	4,523,634	4,473,634	6,925,000	4
Maryland	285,311	319,873	3,295,314	2,372,626	*6,550,000	4
Mississippi	246,242	250,011	2,963,381	2,812,001	6,806,000	5
Missouri	712,965	756,680	9,690,727	9,235,745	*7,865,000	2
North Carolina	464,376	483,602	7,045,116	6,745,116	11,983,000	5
Oklahoma	529,843	570,791	6,964,360	6,749,050	10,929,000	4
South Carolina	216,805	231,274	2,674,379	2,644,472	6,979,000	6
Tennessee	322,137	362,431	4,288,420	4,181,052	*9,250,000	5
Texas	1,214,297	1,348,107	20,418,696	19,622,124	22,180,000	4
Virginia	360,545	387,205	6,145,296	5,885,296	10,510,000	5
West Virginia	251,556	268,888	4,565,836	4,317,127	*5,000,000	4
Total	6,455,424	6,967,571	\$96,098,254	\$90,935,427	\$150,454,000	..
United States	24,493,124	26,501,443	\$347,843,543	\$323,337,805	\$449,731,000	..

*Estimated.

Spreading Gospel of Good Roads Throughout the World

American Automotive Industry Carries on Extensive Campaign to Stimulate Sound Highway Development in Foreign Countries—Promotion Work Under Way on Big Scale

By

ALFRED REEVES

General Manager,

National Automobile Chamber of Commerce,
New York.

ONE MILLION AMBASSADORS of the American automobile industry went overseas last year.

These motor vehicles of American parentage are now serving in the development of world highway transportation.

Each new vehicle exported is an added argument for more and better highways.

Supplementing the silent argument of the vehicle itself are the activities of the trade association of the industry, the National Automobile Chamber of Commerce.

These activities take form in five different directions:

1. Visits to foreign countries of Chamber staff men.
2. Cooperation of Chamber with international visitors.
3. Cooperation of Chamber with Government.
4. Participation in international highway sessions.
5. Cooperation with international groups.

The activities of the Chamber are carried out under policies formulated by committees whose membership comprises the foremost executives of the industry.

Thus, all highway policies, whether foreign or domestic, are formulated by the Highways Committee of the Chamber which is now headed by Roy D. Chapin, a former president of the Chamber, and Chairman of the Board, Hudson Motor Co. Other members are:

A. J. Brosseau, Pres., Mack Trucks, Inc.

Geo. M. Graham, Vice-Pres., Willys Overland Co.

E. D. Jordan, Pres., Jordan Motor Co.
Wm. E. Metzger, Federal Motor Truck Co.

H. H. Rice, General Motors Corp.

In the domestic field this committee cooperates in the development of a sound highway program with the Joint Highway Transport Committee, which includes membership from the motor industry, from the highway officials—Federal and state—and from banking groups. In this way a balance is sought between highway construction and the vehicles which use the roads.

Other domestic groups with which this

committee cooperates include the National Grange and the American Farm Bureau Federation, the United States Chamber of Commerce, the American Association of State Highway Officials, the American Automobile Association, and the Highway Education Board.

This committee also represents the Chamber before congressional committees on highway legislation relating to Federal Aid appropriations, and such problems as toll bridge regulation.

For years the promotional activities of the industry in the interest of sound highway development were confined to the United States. Here they took the form of sponsoring endurance runs, such as the Glidden Tours; assistance in the financing of the Lincoln Highway as an object lesson in highways; and later in the support of Federal Aid for highways which has without question been the greatest single factor in sound development in this country.

Much of the time of the Chamber staff is now devoted to foreign highway activities.

Staff Men Speak in Foreign Countries

ONE STAFF MAN of the Chamber has just returned from his second trip around the world during which he spoke in the interest of highways and showed films portraying highway construction and uses in the United States. Another man has just finished a trip to South America and through Africa. One man is maintained in Europe with headquarters at Paris. He is available for lectures and renders assistance to public and private groups in furnishing them with information on American road practices.

International Visitors Aided

DURING THE COURSE of a year several hundred visitors from abroad

pass through the Chamber office. All are interested in highways. Motor transportation is a common language. We show them our factories, our roads and put them in touch with state and Federal officials charged with financing, building and maintaining highways.

Last year we entertained a large delegation from Germany interested in studying gasoline taxation for road building. They were escorted by Chamber staff men on a nationwide tour.

One day was set aside during the Automobile Show in January of this year which was designated as International Day. Foreign visitors were entertained at Chamber headquarters at luncheon and speakers provided on subjects in which they were interested.

Cooperates With Government

THE INDUSTRY COOPERATES with the different departments of the Federal Government in its relations with other nations. Its men cooperate with the foreign representatives of the government. It furnishes information in response to requests from Government for use abroad. Through Government's representatives abroad it makes available printed material and films showing American highway construction and use.

Participates in International Highway Sessions

CLOSELY RELATED to Government activities are the international meetings on highway matters, sometimes held at the invitation of Governments and sometimes at the instance of private groups. Thus the Chamber was represented at the Fourth International Road Congress at Seville, Spain, when there was no governmental appropriation available for the sending of an American delegation. The industry participated in representations for an appropriation to send a delegation to the Fifth Congress at Milan, Italy, and was represented on the delegation subsequently appointed.

Similarly the industry through the Chamber has been interested in the appropriations for, and the delegations to, the First and Second Pan American Highway Congresses.

Will Aid Sixth Road Congress

AT THE MOMENT the Chamber is contributing largely of staff and in other ways to the success of the Sixth International Road Congress which will be held in Washington in October of this year. The chairman of the Chamber's Highway Committee, Roy D. Chapin, is Chairman of the American Organizing Commission. It is anticipated that this meeting will bring a thousand or more visitors from abroad to learn what highways have done and are doing in the United States.

Following the sessions of the Congress the Chamber is cooperating with the Highway Education Board in sponsoring a series of three educational tours for 300 selected delegates to the Congress who will be invited to participate as guests of the Board.

This activity follows similar plans carried out in 1924 when a group of Latin Highway Engineers were guests of the Board for a month's tour; in 1926 when the Latin American journalists were similarly accorded a first hand inspection of our roads, and in 1927 when the

business men from the countries of Latin America were entertained.

Cooperate with International Groups

THE CHAMBER PARTICIPATES through its executives in sessions of international groups, such as the International Chamber of Commerce.

The chairman of the Chamber's highways committee was instrumental in the appointment of a highways transport committee of the International Chamber. This committee inaugurated a world wide survey of highways. It is now engaged in a study of the various methods of highway financing in use throughout the world.

This committee holds sessions in conjunction with the biennial meetings of the International Chamber at which mutual problems of highway construction, use, and finances are discussed often under the leadership of the Automobile Chamber's executives.

Highway Education Board a Factor

THROUGH the Highway Education Board, which is a semi-official organization with headquarters in Washington, the Chamber assists in the dissemination

of governmental studies into highway construction, use and finance. It cooperates with the Pan American Confederation for Highway Education, which has for its membership the countries which are members of the Pan American Union. Executives of members of the Chamber are on the boards of directors of both organizations. It is to the efforts and vision of the executives of the Chamber's members that such success as has been attained is due. They have taken the time necessary to acquaint themselves with the problems and have devoted much energy to their solution.

Mass Salesmanship Idea

THE WHOLE PROGRAM of highway promotion on behalf of the Chamber has been the support of a mass salesmanship idea wherein not only the United States and its automobile industry would prosper, but all nations. We believe that highway transportation is economically sound and necessary to the well-being of every nation and our efforts have been devoted to helping other countries attain a sound program without going through the difficulties we experienced.

Rigolets Bridge Recently Completed in Louisiana

The Rigolets Bridge, crossing Rigolets Pass, Louisiana, which connects Lake Pontchartrain and Lake Borgne, will shortly be opened to traffic. Together with a bridge over Chef Menteur Pass, completed some months ago, it will provide an uninterrupted means of entering New Orleans from the east via the Old Spanish trail. It consists of three 400-foot steel fixed spans, one 400-foot steel swing span, three 43-foot reinforced concrete deck girder spans on the south end, and fifty 43-foot reinforced concrete deck girder spans on the north end. Concrete approach spans are supported on 24-inch square precast concrete pil-

ing waterproofed with water gas tar. The length of piles varies from 55 to 85 feet. Steel spans are supported on hollow concrete cylinder piers sunk by open dredging to depths ranging from 90 feet to 120 feet below mean tide; these cylinders have an outside diameter of 28 feet and an inside diameter of 14 feet. All the steel spans, including the swing span, have a concrete floor with a 2-inch asphaltic wearing surface. The swing span is not yet completed but will be ready for use shortly; it is to be electrically operated from current furnished by a gas-engine generator set mounted in the bridge tender's house.

Width of roadway is 20 feet in the clear.

Engineering supervision of construction and design was under direction of N. E. Lant, bridge engineer of the Louisiana Highway Commission. The Frederick Snare Corp., New York, built the substructure of both bridges and the Nashville Bridge Co., Nashville, Tenn., erected steel superstructures. Material contractors included the Birmingham Tank Co., Birmingham, Ala., structural steel for caissons; Dudley Bar Co., Birmingham, reinforcing bars; Louisiana Portland Cement Co., through Jahneke Service, New Orleans, cement; Jahneke Service, New Orleans, sand and gravel.



An Important Highway Link for Traffic Approaching New Orleans From the East

AVIATION, AIRPORTS AND AIRWAYS



General View of Tulsa Airport.

In center is main ticket office and site of administration building soon to be erected at cost of \$115,000. Below to left is Spartan School of Aeronautics. At upper left center is Central Airlines hangar, and to its right near the top of the picture is the Universal hangar. In the lower center is hangar of the Southwest Air Fast Express.

Record Number of Persons Use Tulsa's Municipal Airport

\$115,000 Administration Building and \$100,000 Expenditure for Runways Projected
—Numerous Commercial, Mail and Privately Owned Planes Utilize the Field

By PAUL W. PARTRIDGE.

PUSHING forward because of its sound business organization and because of its strategic geographical position, Tulsa's municipally-owned airport in February, 1930, came to lead the world in actual number of persons passing through it within a single month.

Barely twenty months old, the port is undoubtedly the youngest of its class. In July, 1928, when the field was hurriedly made ready for reception of the National Air Tour, it was little more than an open field with a couple of corrugated iron hangars at one side. Since that time, the port has grown in size to include 420 acres and has come to be an all-weather field. It is equipped with 43 boundary and control lights and three 30-million candlepower floodlights which make the center of the field a veritable pool of illumination at night.

Since its development, the port has been called "municipal," but it was not until passage of a recent city bond issue that it became that in fact. Underwriters had previously assumed financial responsibility for the airport and had

pushed it forward as a municipal institution until the city saw fit to take it over. After the port had continued to show a profit, provision for its purchase from the underwriters was written into the bond issue list, which included 13 other propositions, and which amounted to a total of over \$6,000,000. The bond issues program was one of the most formidable ever attempted in Tulsa and was sponsored by the Tulsa Chamber of Commerce.

Cost of the port to the taxpayers was \$650,000, which included improvements amounting to \$215,000; provision for a new administration building, \$115,000; and for further extensions of concrete runways, \$100,000.

Four thousand feet of 36-foot concrete taxi strip are now nearing completion, leading from the decline and the pits to the various hangars. This item alone will cost \$40,000.

Contention that the Tulsa Municipal Airport is actually the largest in the world, from the angle of number of persons handled, is based not on supposi-

tion, but on receipt of cablegrams from three other world ports, generally recognized as leading in volume and efficiency. Manager C. W. Short received communications from the ports of Tempelhofer in Berlin, Croydon in London, and Le Bourget in Paris, which constitute official proof. During the month of February, Tempelhofer's volume was 658; Croydon's 1358, and Le Bourget's, 1850. The total of the three was 3866, which was only a little more than half the total of 7373 persons handled through the Tulsa port.

As the air traveler or mail pilot approaches the field by night, he is welcomed by a beacon which can be seen for 70 miles. When he lands, his plane is signaled to the deadline by an attendant who ascertains requirements of pilots and passengers and oversees servicing of the ship. The incoming pilot then registers and is assisted in every possible way. Fueling pits await the plane in need of gasoline, any one of four brands of fuel can be pumped into tanks at the rate of 20 gallons a minute.

Hangars, now numbering four, are all of steel and stucco, and are the largest commercial air structures in the Southwest. Buildings are maintained by Southwest Air Fast Express, by Southern Air Transport and Braniff divisions of Universal airlines, by the Spartan school of aeronautics and by Central airlines. Mail planes of National Air Transport pass through the port on scheduled runs and a great number of private planes use the port daily.

Ample sleeping facilities are provided transient pilots at "Ye Slippe Inn," a two-story stucco hotel. Here is maintained a strictly club atmosphere, where pilots may rest by day and sleep by night, and be in constant touch with servicing of their planes, and where they may make an early morning start without having to cover the six miles between the port and the downtown business section.

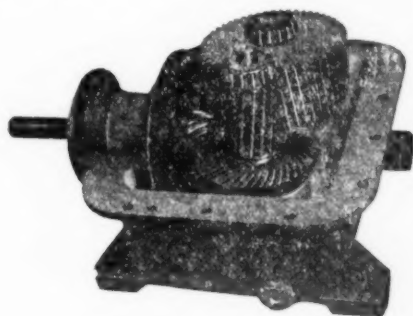
To Study Airport Problems

The second National Airports Conference for discussing airport problems will be held in Buffalo, N. Y., May 14-16. Delegates will be divided into eleven committees to consider finance and accounting, hangar construction, servicing and storage, surfacing and drainage, legal and legislative aspects and problems of seaplane and amphibian bases. Nearly 1000 engineers, city officials and builders are expected to attend the conference which is being sponsored by the Aeronautical Chamber of Commerce, Washington.

NEW AND IMPROVED EQUIPMENT

Right Angle Drive Unit

The Nuttall Works of the Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa., recently completed 45 double reduction gear units for right angle drive for the Tennessee-Eastman Corporation, which is building a cellulose acetate plant at Kingsport, Tenn. These units are used with 10-horsepower, 1200 r p m motors, to drive stirring paddles in chemical vats. A ratio of 10 to 1 is obtained through spiral bevel gears in the first reduction and single helical gears for the second reduction. Timken roller bearings are used throughout, gears and bearings being lubricated by a positive splash system by which oil is carried to moving parts by a circular disc assem-



Interior SA-18 Unit.

bled on the high speed shaft inside the case. A feature of design and construction is what is described as an absolute seal against oil leakage through the lower bearing of the vertical low speed shaft, this precaution being essential to prevent oil from dripping into the chemical solution.

Tie-Tamper Power Unit

The Syntron Company, Pittsburgh, Pa., manufacturers of electric hammers, announce a new model of the Syntron tie-tamper portable power unit on which the hood extends out over the generator to provide further protection from the weather without sacrificing accessibility. The unit consists of a gasoline motor driving a generator which supplies power to operate the tie-tampers, and is made in sizes of 3½, 7½, 12, 15 and 20 kv-a, to operate continuously 2, 4, 6, 8 and 12 tie-tampers, respectively. In addition to operating tie-tampers, the units are used for diversified operations; in laying rail they furnish power for electric spike drivers, driving hammers, and electric nut tightening wrenches. They operate portable rail power hacksaws and other equipment.

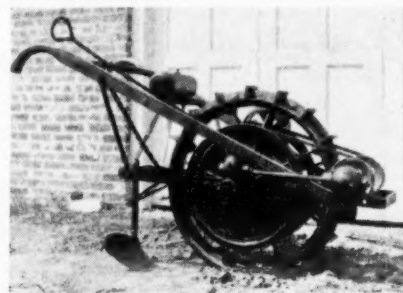
Electrical equipment for the units is manufactured by the Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa.

Bulkometer, For Concrete Operations

Because of the effect of moisture in producing "bulking" of sand, uniformity of proportions in large scale concreting operations is obtained usually by some kind of inundating device. On many operations, however, an inundator is said to be impracticable and in these cases correction in sand content because of bulking is more or less a matter of guess work. In cement-gun work, sand is used in a relatively dry state and inundation processes cannot be used, it is declared, and methods of drying, weighing and computing are too complicated to be practical in field work. To overcome this difficulty, the Cement-Gun Construction Company of Chicago has produced a device called the "Bulkometer," which has been tested by the Portland Cement Association, and found accurate, it is claimed, within practical limits. The device is simple in operation and a bulking test may be made in a very few minutes.

A Tractor Plow

An agricultural implement designed by P. R. McCrary, an engineer of Jacksonville, Fla., will be put on the market under the trade name "McCrary's Mechanical Mule." The device is a tractor of the single-wheel type, 34 inches high with a 6-inch tread, weighing 210 pounds and driven by a 2-horsepower engine built especially for the work it is designed to do. It has a worm drive double V transmission and is equipped with a gyroscopic stabilizer. The tractor will cultivate any row crops, using the one-horse plow points and standard cultivator, and is described by its designer as "easy to handle, reasonable in first cost and cheap to operate." The machine is being manufactured by the C. I. Capps Foundry and Machine Company, Jacksonville.

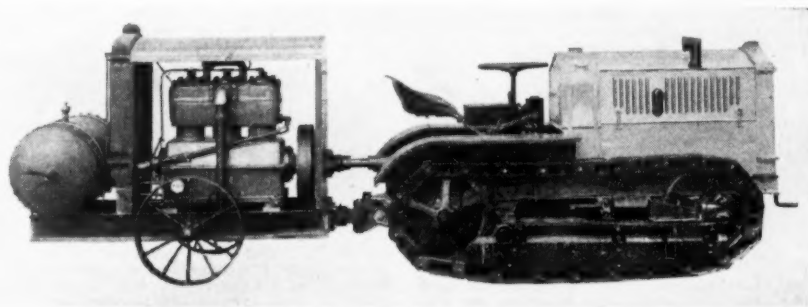


"McCrary's Mechanical Mule"

Schramm Compressor with Cletrac Crawler

The Schramm tractor driven compressor attached to a model 20 Cletrac crawler makes a self-propelled unit that may be driven under its own power on paved streets or over rough surfaces. The compressor is shipped ready to attach to the Cletrac, the two units making a flexible hook-up. An advantage of combination of this type is the facility with which the compressor may be uncoupled and the tractor used for other

purposes, while the combination itself is adapted to the needs of road builders, general contractors, highway departments, municipalities, iron and steel erectors, bridge builders, quarries, etc. The tractor may be started separately from the compressor by means of a throw-out clutch on the power take-off of the tractor; this makes starting easier and keeps the compressor idle when moving from one job to another. The compressor is manufactured by Schramm, Inc., West Chester, Pa., and the Cletrac by the Cleveland Tractor Company, Cleveland, Ohio.



Showing the Two Units in a Flexible Hook-up

CONSTRUCTION DEPARTMENT and NEW ENTERPRISES

Covering the initial announcements of new undertakings with additional information about enterprises previously mentioned. The date at the end of an item indicates preliminary facts were given in a previous issue.

When writing to a new firm or corporation the name of at least one of the incorporators should be placed on the envelope to expedite its handling by the local postoffice. Mail may be delayed unless complete address is given.

Building and Construction Proposed and Contracts Awarded; Manufacturing, Mining, Power, and Land Developments; Public Works; Transportation; Communication; Financial Enterprises; New Business Opportunities Reported in the Sixteen Southern States.

The Daily Construction Bulletin of the Manufacturers Record gives each business day advance news published in this weekly review. It is invaluable to those requiring prompt information. Subscription price \$40.00 a year.

Airports, Airplane Plants, Etc.

Ala., Birmingham—City, R. S. Marshall, Park Supt., opens bids April 29 for 300,000 yd. grading at airport; plans by A. J. Hawkins, City Engr., and E. W. Stanford, Archt. 3-20

Ala., Dothan—Chamber of Commerce, E. M. Weatherly, Secy., considering sites for airport.

Ark., Dermott—Chamber of Commerce authorized committee to establish permanent airport.

Ark., Fayetteville—City changed date of voting on \$20,000 airport bonds from May 8 to May 20. 4-10

Fla., Jacksonville—City, Taylor J. Harris, Mayor, completed preliminary survey for airport and seaplane base, Palm Park and Old St. Johns Ship Yard; Daniel Reed, Engr., of Curtiss-Wright Corp., 27 W. 57th St., New York.

Fla., Miami—All-American Airways, Inc., J. H. Wentworth, Pres. and Gen. Mgr., 226 N. W. 24th Ave., has preliminary sketches for main terminal building; 685x620 ft., A-shaped, 1, 2 and 3 story, conc., steel, hollow tile, tile and comp. roof, tile floors, stucco and terra cotta, steel sash and steel doors, 2,000,000 sq. ft. runway; reported, cost \$600,000, with ultimate expenditure of about \$1,200,000; working drawings to be started soon; Chas. P. Nieder, Archt., Calumet Bldg. 12-5

Fla., St. Petersburg—St. Petersburg Aeronautic Association, Inc., chartered; Bob C. Smalley, 1755 Fourth St.

La., Shreveport—City let contracts for drain pipe for municipal airport as follows: Meriwether Supply Co., 1312 Jordan St., Shreveport, 13,340 ft. 4-in. vitrified clay, \$1275.30; Shearman Concrete Pipe Co., 2600 E. Fourth St., N. Little Rock, Ark., 5960 ft. 8-in. plain, 700 ft. 12-in., 1250 ft. 15-in., 1400 ft. 18-in., 1050 ft. 21-in., 850 ft. 24-in., 900 ft. 30-in., at \$7811.80; Louisiana Corrugated Culvert Co., Louisiana Natl. Bank Bldg., Baton Rouge, 700 ft. 12-in., 700 ft. 15-in., 700 ft. 18-in., at \$2842; H. E. Barnes, City Engr. 4-3

S. C., Greenville—City let contract to Newell Contracting Co., Wallace Bldg., at \$10,400, for grading and topselling municipal airport; taking estimates on lighting equipment; J. E. Sfirine & Co., Engr., 215 S. Main St. 2-6

Tenn., Knoxville—City, Hal Hale, of City Engineering Dept., completing plans and call for bids in about 10 days for \$18,000 hangar, McGhee Tyson Airport; Harry Wright, City Engr. 4-3

Tex., Fort Worth—City, O. E. Carr, City Mgr., has low bid from Quisile & Andrews, 2212 W. Seventh St., at \$25,292, for hangar, municipal airport. 3-20

Tex., Fort Worth—City, O. E. Carr, Mgr., having final plans completed for administration building, Meacham Field; brick, steel, 2 story, conc. floors, comp. or tile roof; includes waiting rooms, baggage rooms, ticket office, etc.; Wiley G. Clarkson, Archt., Natl. Bank Bldg. 3-20

Tex., Lubbock—Chamber of Commerce, reported, receiving bids for hangars on 610-acre site recently acquired for airport. 8-15-20

Tex., Marlin—City acquired airport and started improvement.

Tex., McAllen—City soon let contract for all-steel hangar to accommodate 6 planes. 12-19

Va., Danville—Dixie Flying Service Co., Inc., M. G. Robertson, leased city airport; city expend \$8000 for hangar and shops.

Va., Norfolk—I. Walke Truxton, City Mgr., and Director of Public Works, reported, negotiating with firm for establishing plane manufacturing plant.

Va., Richmond—City has permit for \$10,000 hangar, Byrd Flying Field.

Bridges, Culverts and Viaducts

Proposed Construction

Arkansas—State Highway Comsn., receives bids for 10 bridges. See Roads, Streets, Paving.

Ark., Clarendon—Lieut. Col. F. B. Wilby, U. S. Engr. of Memphis Dist., hold hearing April 22 for erection of proposed highway bridge over White River at Ewan St., Clarendon, by State Highway Comsn., Little Rock; bridge with spans and approaches to be 3 3/4 mi. long, upstream from Cotton Belt R. R. Bridge; plans show six span with 2 piers in banks of river; main span 388 ft. across channel, vertical clearance over 1927 high water of 45.5 ft. at piers and 50 ft. for distance of 125 ft. midway of span; eastern approach entirely on land side of levee; western approach across overflow consisting of one 72-ft. and 88 70-ft. spans, with 10,460 ft. earth embankment to high land; Ira G. Hedrick, Inc., Engrs., Hot Springs. 3-13

Ark., Ozark—State Highway Commission, Little Rock, to construct free highway bridge across Arkansas River, near Ozark. 10-31

Ark., Pocahontas—Senate passed House Bill, authorizing State Highway Comsn., Little Rock to construct free highway bridge across Black River at Pocahontas.

Georgia—State Highway Bd. receives bids for 13 bridges. See Roads, Streets, Paving.

Ga., Columbus—Muscogee County Commrs. Rhodes Browne, Chmn., plan receiving bids in about 2 months for 276-ft. rein. conc. bridge over Central of Georgia and S. A. L. R. R. tracks, 20-ft. roadway, 3-ft. sidewalks; 30-ft. earth fill approaches, clay gravel surface, 25,000 lb. rein. steel; estimated cost \$30,000; eliminate grade crossing on Brown Ave.; C. L. Rhodes, County Engr. 4-3

Louisiana—Louisiana Highway Comsn. receives bids for 2 bridges. See Roads, Streets, Paving.

Maryland—See Roads, Streets, Paving.

Maryland—State Roads Comsn., Baltimore, receives bids April 22 for 3 bridges and jetties; Carroll County—substructure, conc. floor, etc., and approaches for proposed grade elimination on National Pike, east of Ridgeville, at B. & O. R. R. Co. tracks, Cont. Cl-59-53; Allegany County—Conc. girder bridge at Corriganville, on road from Cumberland to Mt. Savage, over Jennings Run, Cont. A-67-67; conc. girder bridge on road from Lonaconing to Westernport over George's Creek, at Moscow Mills, Cont. A-

73-67; Worcester County—proposed timber jetties at Ocean City, one at North First St. and one at North Fourteenth St., Cont. Wo-79-15; G. Clinton Uhl, Chmn.

Md., Baltimore—Highways Bureau, Herman F. Lucke, preparing plans for western terminus of Bath St. viaduct; Ezra B. Whitman, Conslt. Engr., Baltimore Trust Bldg.; Chas. F. Goob, Ch. Engr.; Nathan L. Smith, Highways Engr. 3-20

Mo., Boonville—F. Ringer, Ch. Engr., Missouri-Kansas-Texas R. R. Co., St. Louis, advises, have not yet requested bids for construction of proposed bridge across Missouri River at Boonville, pending conclusion of negotiations with U. S. Government; present plan contemplates construction of substructure, only, during 1930; superstructure will not be contracted for until 1931; previously noted bids opened on or about April 1. 12-19-1929

North Carolina—State Highway Comsn., Raleigh, receives bids April 29 for 2 bridges: Pasquotank and Camden Counties—100-ft. draw over Pasquotank River, Elizabeth City; estimated cost \$350,000; Craven County—draw bridge over Neuse River, Kinston, estimated cost \$150,000; John D. Waldrop, State Highway Engr. 3-27

N. C., Charlotte—City, R. W. Riggsby, Mgr., received low bid from Porter Construction Co., Independence Bldg., Charlotte, at \$55,590, for underpass beneath tracks of Southern Ry. on North Tryon St. 3-27

N. C., Pomona—Guilford County Commrs. and Southern Ry. Co., B. Herman, Ch. Engr., Washington, considering underpass at Pomona, on new Greensboro-High Point road; J. M. Weatherly, County Road Supvr.

Okla., Tulsa—St. Louis-San Francisco Ry. Co., F. G. Jonah, Ch. Engr., St. Louis, Mo., City, F. P. Kitchen, Auditor, receive bids about May 15 for 700-ft. rein. conc. steel viaduct, 58 ft. wide, Boston Ave. and railroad; V. H. Cochrane, Engr., Wright Bldg.

Tennessee—Dept. of Highways and Public Works, Nashville, has authority in bill signed by President Hoover, to construct 2 bridges: Across Hatchie River on Bolivar-Jackson road, near Bolivar; across Holston River on Highway No. 9, Knox County. 3-6

Tex., Anson—Jones County plans 250-ft. rein. conc. bridge across Clear Fork of Brazos River, Highway No. 83, estimated cost \$19,500.

Tex., Coleman—State Highway Comsn., Austin, appropriated fund for survey, etc. for conc. and steel underpass under Santa Fe Ry. on Highway No. 7, estimated cost \$30,000; G. G. Wickline, Bridge Engr.; Gibb Gilchrist, State Highway Engr.

Tex., Dallas—City, J. Waddy Tate, Mayor, plans receiving bids for 42-ft. underpass on new Cadiz St. crossing to Oak Cliff; R. A. Wylie, Street Commr.; John M. Young, City Engr. 3-13

Tex., Dallas—Dallas County Commrs. Court, C. E. Gross, County Auditor, and Texas and Pacific R. R. Co., E. F. Mitchell, Ch. Engr., Dallas, plan 3 new underpasses on Industrial Blvd., Turtle Creek Blvd. and Kessler Outer Blvd., improving underpasses on Beckley and Browder roads.

Tex., Houston—City, W. E. Monteith, Mayor, received low bid from Wisconsin

Bridge Co., 257 Western Ave., North Milwaukee, Wis., at \$175,405, for McKee St. Bridge.

Tex., Point Isabel—War Dept., Washington, D. C., granted permit to Seymour & Whittle, Kenton, Ohio, to build proposed \$1,000,000 causeway, from Point Isabel to Padre Island, 5 mi. long across Laguna Madre; reported project sponsored by Industrial Holding Corp., for causeway company and Point Isabel Beach Properties, Inc.; V. L. Conrad, Engr., Brownsville; work expected to start in 60 days. 2-27

Virginia—State Highway Comsn., received low bids for 4 bridges. See Roads, Streets, Paving.

Va., Luray—Town plans expending \$26,000 for bridge. See Financial News Columns. 3-27

Va., Petersburg—Seaboard Air Line Ry., W. D. Faucette, Ch. Engr., Savannah, Ga., considering bridge across Appomattox River, Petersburg, cost about \$400,000; replace present structure, eliminate curve.

Contracts Awarded

Alabama—State Highway Comsn., Montgomery, let contracts for 6 bridges: Conecuh County—timber and steel bridge on Evergreen-Midway Highway, Ed Pettus, Montgomery, \$13,223; Butler County—bridge over Persimmon Creek on Garland Spur, W. C. Ernest, Jr., Mobile; DeKalb County—4 bridges between Fort Payne and Scottsboro, Nixon & Phillips, 917 Sixth Ave., N., Birmingham, \$39,105; bids on bridge projects on Talladega-Sylacauga road, Talladega County, and bridge across Weogufka Creek, Coosa County, held up pending investigation. 4-3

Ala., Birmingham—Virginia Bridge & Iron Co., has contract for 260 tons fabricated struct. steel, for Fourteenth St. viaduct.

Florida—State Road Dept., Tallahassee, let contracts for approaches to 3 bridges: Broward County—approaches to Turkey Creek Bridge, L. M. Gray, Gainesville, \$9531; approaches to Tarpon River and Himmarshee Canal Bridges, S. P. Snyder & Son, S. W. Sixth St., Fort Lauderdale, \$26,339; Columbus and Suwannee Counties—approaches to Itchucknee River Bridge, Duval Engineering and Construction Co., Dyal Upchurch Bldg., Jacksonville, \$16,123; B. M. Duncan, Ch. Engr.

Fla., Barton—Cone Brothers Construction Co., contractors, Caesar and Walton St., Raleigh, Fla., let contract to A. A. Griffith, Raleigh, Fla., for 2,500 cu. yd. crushed stone for 3 bridges and pass in Polk County.

Md., Baltimore—McClintic-Marshall Co., Oliver Bldg., Pittsburgh, Pa., has contract for 250 tons conc. bars for Pennington Ave. Bridge over Curtis Creek; Sanford & Brooks Co., South and Water Sts., has contract for construction. 3-27

Miss., DeKalb—Kemper County Bd. of Suprvs., let contract to W. L. Bounds, Shubuta, Miss., for 3 bridges: One 3-span Lettett Bridge; 3-span Blackwater Bridge; approaches to present bridge across Pawtiefaw Creek; P. H. Pipkin, Engr., DeKalb.

Okla., Oklahoma City—City, E. M. Fry, Mgr., let contract to Laclede Steel Co., Arcade Bldg., St. Louis, Mo., for 170 tons rein. steel for Exchange Ave. viaduct. 4-10

West Virginia—American Bridge Co., 71 Broadway, New York, has contract for 375 tons struct. shapes for miscellaneous state bridge work in West Virginia.

Canning and Packing Plants

Ark., Huntsville—Huntsville Canning & Mfg. Co., incorporated; Tom Hargis.

Florida—Avon Park Packing Co., Inc., Avon Park, owned by Lakemont Packing Co., Inc., Sebring, will construct 200 x 208 ft. packing plant at Sebring to replace burned building and branch plant at Avon Park, 100x175 ft.; both wood framing with metal sheeting; wood floors; metal roof; cost of buildings \$60,000, of equipment, \$110,000; construction by owners; Florida Citrus Machinery Co., Dunedin, will furnish machinery, other materials to be purchased locally. 3-6

Florida—M. C. Britt, Winter Garden, let contract to Bland & Foster, Winter Garden, for vegetable canning plants at Linden and Alachua, Fla., and Denmark, S. C.; 48x200 ft.; frame; galv. roof; capacity 10 cars. 4-10

Fla., Williston—Seaboard Air Line Ry. Co., Chas. R. Capps, 1st V.P., Norfolk, Va., advises there is no truth in the report that Seaboard contemplates building 2 packing plants at Williston. 4-10

Mo., Humphreys—Humphreys Canning Co., incorporated; Alex James, J. C. Moberly.

S. C., Dillon—Dillon County Bd. of Trade, reported, negotiating with outside interests for canning plant.

Tex., Weslaco—Bill Babb, H. R. Mills, reported, interested in establishment of packing plant.

Concrete and Cement Plants

Okla., Tulsa—Oklahoma Cement Pipe Co., J. M. Chandler, Pres., Mayo Bldg., started excavation for \$50,000 plant; let contract to Patterson Steel Co., 801 N. Xanthus St., for struc. steel; owner builds by day work; Howard Parker, Struc. Engr., 1205 S. Peoria St. 2-27

Coal Mines and Coke Ovens

Tennessee—See Railways.

Cotton Compresses and Gins

Ark., Wilson—Lee Wilson & Co. advises no definite action taken concerning rebuilding of cotton gin; will probably decide about June 1.

Ga., Uvalda—W. A. Johnson, reported, acquired ginning plant of J. W. Calhoun.

Miss., Marks—Quitman County Compress constructing compress on Marks-Tutwiler Highway; 240x340 ft.; install steam operated hydraulic press with capacity of 25 bales per hr.; D. E. Williams, Clarksdale, supervising construction. 3-6

Okla., Blanchard—Farmers Co-Operative Gin, capital \$25,000, incorporated; C. F. Smith, W. H. Thomas.

Drainage, Dredging and Irrigation

Miss., Senatobia—Comms. of Strayhorn Drainage Dist. let contract to Hansen & Omeara, Bloomington, Ill., at 7.74 cents per cu. ft., for digging Strayhorn Creek drainage canal; 13 mi. open ditch excavation, involving approx. 325,454 cu. yd. earth; W. A. Birdsong, Engr., P. O. Box 484, Clarksdale. 3-27

Mo., Bloomfield—S. Wilson, Dist. Engr., care Office W. C. Jackson, Clk., Stoddard County, let contract to M. W. O'Meara Construction Co., Quincy, Ill., at \$0.076 per cu. yd., for recleaning ditches, 637,282 cu. yd. main and 19,155 cu. yd. lateral excavation, for Drainage Dist. 44. 2-13

North Carolina—Ch. of Engrs., U. S. Army, Washington, authorized dredging 1,806,000 cu. yd., Norfolk-Beaufort Inland Waterway; U. S. Engr. Office, Norfolk, soon receive bids.

Oklahoma—Coon Creek Drainage Dist., Oklahoma City, let contract to Western Construction Co., Hales Bldg., Oklahoma City, at \$39,600, for drainage and straightening Coon Creek. 3-6

Tex., Boston—Bowie County Drainage & Levee Dist. No. 1 authorized by R. L. Bobbitt, Attorney General, Austin, to issue \$15,000 bonds.

Tex., Galveston—City authorized by War Dept., Washington, to construct drain through shore extension of Galveston south jetty at point near its inner end, 80 ft. from junction of sea wall with the jetty.

Tex., Mercedes—Hidalgo & Cameron Counties Water Control & Improvement Dist. No. 9, G. G. Common, Engr., advises regarding award of contract for spraying with gunite, 3,000,000 sq. ft. in irrigation system: "Contract was let to R. W. Briggs & Co., Pharr, Tex.; announcement that contract had been let to California Gunite Construction Co. was somewhat premature." 4-3

Electric Light and Power

Electric light and power work in connection with many LAND DEVELOPMENT operations involves the expenditure of large sums of money. See that classification for details.

Ala., Tuskegee—Guy W. Thaxton, 1276 N. Congress St., Jackson, Miss., and associates, reported, acquired Tuskegee Light & Power Co.

D. C., Washington—Barber & Ross, Inc., 11th and G Sts. N.W., reported, have contract for 1500 tons struc. steel for 5-story storage and distributing plant for Potomac Electric Power Co., 14th and G Sts. 4-10

La., Ferriday—Louisiana Power & Light Co., Algiers, rehabilitating portion of electric distribution system. 3-27

Maryland—Robert Garrett & Sons, Baltimore, offering \$1,000,000 first mortgage 5½% Gold Bonds, Series A, of Maryland Light & Power Co., Floyd W. Woodcock, Pres.; company incorporated under laws of State of Maryland as subsidiary of Empire Public Service Corp., 1600 Arch St., Philadelphia, Pa.; will acquire properties now furnishing electric light and power to 64 communities in Maryland, having combined population of 40,000; principal communities served include Pocomoke, Princess Anne, Lonaconing, Deals Island, Tilghman, Bonsboro, Dames Quarter, Oxford, Emmitsburg, Millington, Sharpsburg, Barton, Chance, Mechanicsville, Mt. Vernon, La Plata, Prince Frederick; proceeds to be used, together with proceeds from preferred and common stocks to be outstanding upon completion of present financing, are to be used for and in connection with acquisition of properties mentioned above and for other corporate purposes. 4-10

Md., Easton—Public Service Comsn., Baltimore, approved franchise granted Talbot County Commrs. to Maryland East Coast Utilities Co., subsidiary of East Coast Utilities Co., Richmond, Va.; will construct distribution and transmission lines from Oxford along Oxford-Easton Rd. and from Trappe Station along road to Hableton to Trappe connecting there with Trappe Electric Co.'s lines. 2-6

Mississippi—See Ice and Cold-Storage Plants.

Miss., Yazoo City—T. B. Grantham, reported, has contract for enlarging building for installation of turbine, contract for which was let to General Electric Co., Schenectady, N. Y. 4-10

Mo., Columbia—Murray Boiler Works, Burlington, Iowa, reported, has contract at \$49,000 for two 600 h. p. boilers at light plant. 3-13

Mo., Little Blue—Missouri Public Service Co., Warrensburg, reported, applied for 10 yr. contract for light and power for group of buildings on Jackson county farm.

North Carolina—See Virginia.

N. C., Everetts—Virginia Electric & Power Co., Richmond, Va., reported, negotiating for town light plant.

N. C., Kinston—City, Wm. C. Olsen, Inc., Engrs., Raleigh Building & Loan Bldg., Raleigh, receives bids May 7 for furnishing, delivering and erecting power plant equipment, material and apparatus. See Want Section—Bids Asked.

Okla., Altus—City, reported, rebuild light and power plant, burned at loss of \$200,000.

Texas—Texas Power and Light Co., Dallas, offering \$4,000,000 first and refunding mortgage gold bonds, series 5%, due 1956, through Harris, Forbes & Co., New York and associates; company owns and operates electric transmission system in Texas, supplies light and power to Waco, Denison, Sherman, etc.; plans construction of unit to increase capacity of Trinidad station on Trinity River. 1-23

Virginia—Virginia Electric & Power Co., Richmond, authorized issuance of \$2,000,000 6% stock; issue is to provide funds for general improvements throughout company's operating territory covering eastern Virginia and parts of North Carolina; company is also preparing extensive hydro-electric development in North Carolina and expansion of hydro-electric facilities of Roanoke River. 3-6

Virginia—Virginia Public Service Co., South Boston, construct 14 mile single phase, 6600 volt power line from Burkeville to Grenbay and Meherrin; R. C. Hunt, Constr. Engr.; work by company's forces. 3-27

Va., Mouth of Wilson—Fields Mfg. Co., Inc., constructing conc. dam on New River for developing hydro electric power, develop 135 h. p. by first unit; manufactures slasher cloth, etc.

Va., Manassas—C. W. Alpaugh negotiating for light plant and water system; applied for franchise.

W. Va., Franklin—Monongahela West Penn Public Service Co., Fairmont, reported, granted 20 yr. light and power franchise.

Flour, Feed and Meal Mills

La., New Orleans—J. M. Werling, 2909 St. Bernard Ave., reported, receiving sub bids on electric wiring, plumbing, sheet metal work, paving, lumber, etc., in connection with alterations and addition to building for Milan Grain Milling Co., Gentilly Rd. and Peoples Canal.

Foundry and Machine Plants

Mo., Kansas City—National Steel Products Co., 1611 Crystal St., manufacturer of armored truck bodies, steel forts for banks and dump bodies for trucks, let contract to Sebastian Patti Construction Co., Lee Bldg., for \$40,000 plant addition, 1 story, 50 x 125 ft.

Mo., Kansas City—Wheatley Bros. Machine Co., 2505 Broadway, capital \$200,000, incorporated; Frank Wheatley.

Okla., Oklahoma City—Sherman Machine & Iron Works, Warren Sherman, Pres., 18 E. Main St., drawing plans for rebuilding plant burned with \$15,000 loss.

Okla., Tulsa—Wheatley Bros. Brass Foundry & Machine Works, 24 N. Ouasso St., let contract to Howard & DeWitt for \$50,000 foundry; 1 story, 85x176, brick, rein. conc. foundation; started construction; private plans.

Garages and Filling Stations

Ala., Birmingham—Frank Dominick, First Natl. Bank Bldg., let contract to Harrison Richardson, Brown-Marx Bldg., for filling station, Telula St. and Third Ave., West; 1 story, brick, comp. roof; Sinclair Refining Co., Lessee; private plans.

Ark., Fordyce—Trans-Continental Oil Co., C. C. Howard, Local Agt., let contract to Green Roberts, Tulsa, Okla., for \$11,000 filling station and garage; 50x140 ft., comp. roof, conc. floors, misc. steel; equipment, \$7000; private plans.

Ark., Junction City—Sample Motor Co., capital \$25,000, incorporated; G. H. Sample.

Ark., Mulberry—Fount & Queensbury started erecting garage and filling station, Hwy. 62 and Main St.; 1 story, brick veneer; owner builds.

D. C., Washington—P. M. and Mary H. Walker, Center Market, have permit for \$11,000 filling station, 4307 Wisconsin Ave., N. W.

Fla., Miami Beach—Standard Oil Co., A. A. Ling, Mgr., N. W. 11th St., Miami, has permit for \$10,000 service station, Collins Ave. at 12th St.; owners build, day labor.

Fla., Sarasota—Pearsall Garage Co. incorporated; W. L. Pearsall, Detura St.

Ga., Columbus—Woodruff Co. erect automobile building, First Ave. and 15th St.; S. H. Striplin, Lessee, DeSoto and Plymouth dealer.

Ga., Macon—Atlantic Refining Co., 260 S. Broad St., Philadelphia, Pa., has permits for 3 filling stations, totaling \$12,000, Broadway and Pine St., and Adams St. and Coleman Ave.

Ky., Lexington—Phoenix Lumber Co. has permit for \$20,000 storage garage, 179 E. High St.; brick, stone foundation.

La., Bryceland—J. O. Bryan and J. E. Jones erecting filling station.

La., Opelousas—Texas Co., Chrysler Bldg., New York, erect filling station, Main St.

La., Opelousas—Ave. Bordelon, Chevrolet dealer, erecting filling station.

La., Opelousas—Texas Co., Chrysler Bldg., New York, erect filling station, Main St.

Md., Baltimore—Following have sub-contracts in connection with \$750,000 garage, St. Paul and Saratoga St., of St. Paul Garage Co.; Plumbing and heating, Lloyd E. Mitchell, Inc., 915 E. Monument St.; elec. wiring, Bennett Electric Co., 210 N. Calvert St.; rein. steel, Dietrich Bros., 220 Pleasant St.; steel sash, Thorn Mfg. Co., 213 East St.; east stone, Benedict Stone Co., 2101 E. Fort Ave.; Consolidated Engineering Co., Inc., Gen. Contr., St. Paul and Franklin St.; Wyatt & Nolting, Archt., Keyser Bldg. 2-13

Md., Baltimore—Ditch, Bowers & Taylor, 1430 N. Charles St., let contract to Chas. Stockhausen Co., Inc., Gay and Water Sts., for rebuilding auto service and storage, North and Mt. Royal Ave., recently burned; plans not drawn; owner, Archt.

Md., Baltimore—Atlantic Refining Co., 260 S. Broad St., Philadelphia, Pa., acquired site, 114-116 E. Pratt St.; raze buildings and erect filling station.

Miss., Yazoo City—Woolwine & Hull, Ford dealers, let contract to W. R. Ellis, Clarksdale, for \$40,000 building, Washington St.; N. W. Overstreet, Archt., Jackson. 2-20

Mo., St. Louis—Standard Oil Co., 314 N. Jefferson St., acquired site, 39th St. and Russell Blvd., for filling station.

Mo., Wellston—St. Louis Auto Parts & Salvage Co., capital \$25,000, incorporated; Dave Friedman, Simon Goldstein.

N. C., Asheville—Motor Truck Sales Co., capital \$50,000, incorporated; J. T. Hendon, 276 Montford Ave.

N. C., High Point—High Point Radiator & Body Co., incorporated; W. W. Ward, 234 Montlieu St.

N. C., Oxford—Ellington Motor Co., capital \$25,000, incorporated; John R. Ellington, Andrew Jamieson.

N. C., Winston-Salem—Central Cadillac La Salle Co., capital \$100,000, incorporated; Wm. E. Froelich, 735 Arbor Rd.

Okla., Oklahoma City—National Automobile Hotel Co., D. I. Johnston, Commercial Exchange Bldg., secured site for \$350,000 automobile hotel, 3-5 W. Main St.; 7 story, 100x140 ft., buff brick; raze present 3-story brick structure.

S. C., Spartanburg—Odum Battery & Tire Co., 138 Spring St., opens bids Apr. 21 for service station; 1 story, part basement, 110x37 ft., rein. conc., struc. steel, cast stone trim, face brick, steel sash, misc. and orn. iron and steel built-up roof, conc. and hardwood floors; J. Frank Collins, Archt., Andrews Bldg.

Tenn., Tullahoma—Pan-American Petroleum Co. let contract to Building Supply Co. for \$10,000 filling station; 1 story, brick, steel, tile and comp. roof, conc. floors, plate glass front.

Tex., Beaumont—Humble Oil & Refining Co., Humble Bldg., Houston, erect \$10,000 filling station, Calder Ave. and Third St.

Tex., Harlingen—J. M. Nix, 205 Travis St., San Antonio, plans storage garage.

Tex., Paris—Osborn Motor Service, Inc., started remodeling Wise Bldg., N. Main St., for super service station.

Tex., Yoakum—Landry Motor Sales Co., capital \$20,000, incorporated; J. H. Landry, J. T. Hardy.

Va., Pulaski—Pulaski U-Drive-It Corp., capital \$50,000, incorporated; Joe L. Harris.

Va., Richmond—George H. Whitfield, 1516 Westward Ave., has permit for \$10,250 filling station, 1001 N. Boulevard.

Va., Richmond—B. F. Goodrich Rubber Co., Akron, Ohio, acquired site, Broad and Terminal St.; Goodrich Silvertowns, Inc., 808 E. Cary St., erect modern super service station; brick, tile, stucco; \$40,000; now starting construction.

Va., Roanoke—Charles E. and George Enfield acquired Watson Motor Co., Buick and Marquette dealers.

W. Va., Wheeling—Twelfth Street Garage, C. A. Vaden, Pres., Wheeling Bank and Trust Bldg., opens bids May 10 for \$125,000 garage, 1120 Eoff St.; 6 story, 125x66 ft., conc. floors; install equipment costing \$25,000, including washing and greasing equipment, automatic doors, heating boilers, etc. 4-10

W. Va., Wheeling—Standard Oil Co. of New Jersey, 6 23rd St., has permit for \$12,000 service station, 20th and Chapline St.; brick, tile.

Gas and Oil Enterprises

Ark., El Dorado—Lion Oil Refining Co., advises Smith Engineering Co., 107 W. Linwood St., Kansas City, Mo., are handling installation of asphalt plant; 90% of the material, part of which includes towers, heat exchangers and vacuum ejectors, already ordered from Elliott Co., Frick Bldg., Pittsburgh, Pa.; Byron Jackson Co., San Francisco, Calif., has contract for centrifugal pumps. 1-23

Ark., El Dorado—Wakefield Oil Corp., incorporated; T. A. Wakefield.

Ark., Fayetteville—Arkansas Western Gas Co., offering \$700,000, first closed mortgage 7% sinking fund gold bonds through A. M. Lamport & Co., Inc., 44 Pine St., N. Y.; company completed lines and commenced distribution of natural gas in March, 1930; transmission lines extend over 100 miles from gas fields of Arkansas-Louisiana Pipe Line Co., (subsidiary of Cities Service Co., 60 Wall St., N. Y.) in vicinity of Clarksville, Johnson County; serves under franchises, extending beyond 1953, cities and towns in northwest Arkansas, including Fayetteville, Bentonville, Springdale, Rogers, Siloam Springs and Gentry; company obtains supply of natural gas by purchase from Arkansas-Louisiana Pipe Line Co., (subsidiary of Cities Service Co.); T. F. Murchison, is president of company, R. H. Krammes, Secy., management of company is in hands of Southern Union Gas Co., main office, Dallas, Tex. 11-23

Fla., Haines City—Ralph B. Wagner, reported, has 20 yr. gas franchise; install plant and lines.

Ga., Adairsville—B. Miffin Hood Roofing Tile Co., 686 Greenwood Ave., N. E., Atlanta, closed contract with Georgia Natural Gas Corp., Watts Bldg., Birmingham, Ala., associated company of Southern Natural Gas Corp., Atlanta, for installation of piping and equipment for use of natural gas; manufactures Latin and Spanish roofing tile of barrel and tapered barrel type.

Kentucky—Inland Gas Corp., Ashland, reported, acquired 6091 acres of natural gas franchise properties in Hagoffin and Johnson Counties.

Ky., Harrodsburg—Peoples-Aetna Oil Co., capital \$70,000, incorporated; W. W. William, Lawrence Walker.

Ky., Murray—Jackson Purchase Oil Co. increased capital to \$50,000.

La., Shreveport—Crystal Oil Refining Corp., Commercial Bank Bldg., advises nothing definite decided with reference to improvements to Cedar Grove refinery. 4-3

La., Shreveport—Arkansas Natural Gas Co., Ardis Bldg., started construction of casinghead gasoline plant in Bossier Parish; daily capacity 170,000 gal.; construction work in charge of E. P. Farmer; Southwestern Engineering Corp., Magnolia Bldg., Dallas, Texas, in charge of installation equipment. 4-10

Mo., Corder—Lafayette Oil Co., capital \$30,000, incorporated; C. G. Kleinschmidt, R. L. Jackson.

Mo., Farmington—Missouri Natural Gas Co., 1017 Olive St., St. Louis, applied to State Public Service Comsn., Jefferson City, for permission to install and operate natural gas distribution plant; has 20 yr. franchise.

N. C., Chapel Hill—City granted 60 yr. franchise to Durham Gas Co., Durham; install gas mains; extend high pressure main from Durham; cost \$100,000. 4-10

N. C., Clinton—Coharie Oil Co., capital \$50,000, incorporated; F. M. Edgerton, Earl C. Cooper.

Oklahoma—Mid-Kansas Oil & Gas Co., W. W. Fleming, 1011 E. 21st St., Tulsa, reported, acquired and will operate properties in Caddo County of Caddo Oil Co., 413 S. Boston St., Tulsa; Louisiana Oil & Refining Corp., First Natl. Bank Bldg., Shreveport, La.; Ramsey Petroleum Corp., Petroleum Bldg., Oklahoma City.

Oklahoma—Sinclair Pipe Line Co., Sinclair Bldg., Tulsa, reported, let contract to Youngstown Sheet & Tube Co., Youngstown, O., for 3700 tons of 10-in. seamless pipe for 37 mile pipe line to Oklahoma City pool.

Oklahoma—Missouri Valley Gas Co., Omaha, Neb., increased no par capital from 2500 shares to 2,500,000 shares, also no par; constructing 900 mile pipe line from Stevens County field in Kansas to points in Eastern Nebraska and Iowa; has 325,000 acres in Texas County, Okla., and Stevens and Morton counties, Kan. 3-27

Okla., Oklahoma City—Pioneer Gas Co., reported, negotiating for gas distribution system.

S. C., Florence—Southern Builders, Inc., reported, erect bulk station for Texas Co.; conc. and brick; cost \$25,000.

Texas—Pure-Van Pipe Line Co., subsidiary of Pure Oil Co., Pure Oil Bldg., Chicago, Ill., is starting to build 190 mile 10-in. pipe line from Van to Smiths Bluff, where Pure Oil Co. owns and operates refinery; are building own telephone and telegraph lines along pipe lines for entire distance; poles will be treated pine poles and pr. of No. 8 Copperweld wires; pole line and wire construction by company's forces; W. M. Averill, care of Pure-Van Pipe Line Co., in charge of work. 4-10

Texas—P. W. Chapman & Co., Inc., 42 Cedar St., New York, offering \$3,000,000 first mortgage 6% sinking fund gold bonds of Texas Gas Utilities Co., (bonds exchangeable for common stock of Appalachian Gas Corp.) Texas; Gas Utilities Co. is subsidiary of Appalachian Gas Corp., and distributes natural gas in Southwest Texas; upon completion of construction of pipe lines provided by this financing, company in addition to furnishing gas to Central Power & Light Co., for its plant at Del Rio, will furnish gas to Del Rio, Eagle Pass, Uvalde, Crystal Springs, and Carrizo Springs and intervening territory, including Winter Garden district in Zavalla and Dimmitt Counties; also offering \$2,500,000 convertible 6% debentures of Appalachian Gas Corp.;

company through subsidiaries furnishes gas to utilities and industries in Appalachian gas field; properties owned or controlled by companies in Appalachian Gas Corp. group are in West Virginia, Kentucky, and Ohio; upon completion of this financing Appalachian Gas Corp. will have in excess \$1,500,000 in cash to provide for extensions, for acquisition additional properties, etc., has contract for gas sales with United Fuel Gas Co., subsidiary of Columbia Gas & Electric Corp., 61 Broadway, N. Y., from approximately 15,000 acres in Boyd and Greenup Counties, Ky., and Wayne County, W. Va.; contract with Hope Natural Gas Co., Standard Oil Co. of N. J. subsidiary, 26 Broadway, N. Y., covers 8,000,000 cu. ft. of gas per day, to be delivered in Roane County, W. Va.; contract with American Encrusting Tiling Co., Ltd., covering 80% requirements its main plant Zanesville, O.; contract with Owens-Illinois Glass Co. and Libby-Owens Glass Co., both Toledo, O., covers gas produced in Kanawha County, W. Va., up to 1,000,000 cu. ft. per day; and contract with Owens-Illinois Glass Co. and Libby-Owens Glass Co., providing for delivery 5,000,000 cu. ft. gas daily in Wayne County, W. Va.; Union Management & Engineering Corp., 46 Cedar St., N. Y., (under direction of respective boards of directors) supervises operations Ohio Valley Gas Corp., and Ohio Kentucky Gas Co., Allegheny Gas Corp., and Ohio Southern Gas Co., all of which are included in Appalachian Gas Corp. group; Union Management & Engineering Corp., also supervises operations of Memphis Natural Gas Co., Memphis, Tenn. 4-3

Tex., Cisco—Consolidated Gasoline Co., reported, construct 6-in. line to carry gas from East Cisco oil field to booster plant, 4 miles; cost \$18,000.

Tex., Corsicana—Magnolia Petroleum Co., Magnolia Bldg., Dallas, reported, improve refinery; E. E. Plumley, V. P., in charge of refining operations.

Tex., El Paso—Rio Grande Oil Co., 525 E. Seventh St., reported, issue \$7,500,000 in 6½% serial notes for general expansion program.

Tex., Fort Worth—Magnolia Petroleum Co., Magnolia Bldg., Dallas, reported, negotiating for right of way for 3-in. gasoline pipe line, Fort Worth to Dallas.

Tex., Houston—Texas Pipe Line Co., increased capital \$20,000,000 to \$50,000,000.

Tex., Texon—Texon Oil & Gas Co., reported, applied to Railroad Comsn., Austin, for permission to establish carbon black plant, to use residue gas from company's well in Reagan County.

Va., Narrows—Commonwealth Public Service Co., 105 W. Adams St., Chicago, Ill., advises does not hold franchise at Narrows as lately noted. 3-27

Va., Richmond—Common Council adopted ordinance authorizing issuance of \$686,000 bonds for gas and water plant improvements and extensions, grading streets, etc.

West Virginia—Duquesne Gas Corp., financed by Furland & Co., Inc., 52 Wall St., New York, reported, completed purchase of 40,000 acres gas and oil territory in West Virginia and Pennsylvania. 3-27

W. Va., Huntington—Shellbark Oil Co., incorporated; H. E. Hines, 916 Fifth Ave.

W. Va., Princeton—Amere Gas Utilities Co., 3130 Hall St., St. Louis, Mo., reported, applied for gas franchise; city votes April 28 on application.

Ice and Cold-Storage Plants

Fla., St. Petersburg—Duncan, Inc., erect \$25,000 ice plant, 1958 Fifth Ave., South; 1 story, 46x82 ft., masonry construction; Edgar Ferdon, Archt., Summer Bldg.

Mississippi—Mississippi Power Co., A. L. Oesterle, Operating Mgr., Gulfport, acquired power and ice plants in South Mississippi towns, including Hickory, Purvis, Decatur, Bay Springs, Stringer, Loun, New Augusta, Waynesboro, Leakesville and Laurel.

N. C., Washington—James H. Filling erect 20 to 25-ton ice plant; brick, steel; install equipment from York Ice Machinery Corp., York, Pa.

Tenn., Chattanooga—King-Dobbs Co., Henry King, 416 E. 11th St., reported, erect \$1,250,000 warehouse and cold storage plant.

Tex., Edna—Central Power & Light Co., Frost Natl. Bank Bldg., San Antonio, let contract to H. E. Sutton, El Campo, at \$15,-

927, for ice plant; 1 story, conc., 83x59 ft.; Jno. M. Marriott, Archt., Frost Natl. Bank Bldg., San Antonio. 3-27

Va., Farmville—W. C. Newman, Inc., capital \$50,000, chartered; S. C. Newman; ice and cold-storage.

Iron and Steel Plants

Ala., Birmingham—Merger of Republic Steel Corp., Republic Bldg., Youngstown, Ohio, with plant here; Alloy Steel Corp., Massillon, Ohio; Donner Steel Co., Inc., 400 Abbott Rd., Buffalo, N. Y., and Bourne-Fuller Co., 1900 Scranton Rd., Cleveland, Ohio, reported, consummated. 2-6

Ala., Birmingham—Tennessee Coal, Iron & Railroad Co., H. C. Ryding, Pres., Brown-Marx Bldg., reported, will start work at once on improvement to plants and new development at Fairfield, involving \$8,000,000 to \$9,000,000; Finance Committee authorized following improvements to plants: Construction of additional 150-ton open hearth furnace, alterations to present 45-in. blooming mill, including constructing additional soaking pit, installing sheet and strip rolling mill. 2-20

Ala., Birmingham—Sloss Sheffield Steel & Iron Co., 3131 N. First Ave., let contract to Smallman Construction Co., 1109 Ave. E. for laboratory building, First Ave. and 31st St.; 1 story, 26x80 ft., brick, built-up roof; Jacob E. Sallee, Archt., Empire Bldg.

Ala., Sylacauga—Eagle Iron Works erecting pattern shop.

Md., Baltimore—Stockholders of Youngstown Sheet & Tube Co., Stambaugh Bldg., Youngstown, Ohio, reported, ratified merger with Bethlehem Steel Corp., Bethlehem, Pa., with plant here at Sparrows Point section. 3-20

Land Development

Ark., Fort Smith—Kelly Trust Co., 13 N. Seventh St., developing Bonneville Park Cemetery, Waldron Rd. and Grand Ave.; plans being drawn for buildings of quarry stone.

Ark., Little Rock—Cole Building Co., capital \$35,000, incorporated; K. E. N. Cole, 4316 S. Lookout St., develop residence addition adjacent to new Lincoln Ave. route to Pulaski Heights.

Fla., Jacksonville—Wand-Elton Realty Co., incorporated, J. H. Elton, 2542 St. Johns Ave.

Fla., Miami Beach—Indian Creek Golf Club, R. F. Matthews, 5709 Sheridan Ave., receives bids in about 10 days for laying 15,200 ft. of water mains; Watson & Garri, Engrs., Hill Bldg., Miami. 2-13

Fla., Miami Beach—Beach Polo Club, incorporated by John D. Hertz, Nelson Talbott, developing 125 acre tract north of Sunny Isle Casino; W. E. Brown Engineering Co., Miami Beach, Engr., let contract to Moody, Anderson & Milling Co., Hollywood, for dredge and pump work. 3-20

Fla., Miami Beach—Indian Creek Golf Course, R. F. Matthews, 5709 Sheridan Ave., developing island in bay west of 92nd St.; let contract to National Cast Iron Pipe Co., Birmingham, Ala., at \$18,000 for pipe, \$722 for fittings and \$1584 for valves and fire hydrants; receiving bids for installation 13,200 ft. water mains, fire hydrants, etc.; Watson & Garri, Civil Engr., 300 Hill Bldg., N. E. First St., at First Ave., Miami. 3-27

Fla., Orlando—Midstate Development Co., incorporated; M. B. Palmer, 317 Jonce de Leon Place.

Mo., Liberty—Howard S. Hall, Chrm. City Plan Comsn., commissioned Madorie & Bihr, Natl. Fidelity Life Bldg., Kansas City, Archt., to sketch suggestion for 10 yr. public improvement program.

Mo., St. Louis—Greulich Realty & Investment Co., 3111 N. Grand St., develop 4 additional blocks west of Kingshighway and Northwest Blvd.; install water, gas, electric and sewers.

Okla., Oklahoma City—City, E. M. Fry, City Mgr., has tentative plans for \$450,000 park improvements. 3-27

S. C., Georgetown—Wm. E. Kimball, 20 W. Eighty-sixth St., N. Y., reported, acquired 2 plantations on Waccamaw Peninsula, 1000 acres.

Tenn., Knoxville—City Council passed ordinance authorizing issue of \$100,000 bonds for purchase of Sterchi Park. 4-3

Tex., Austin—City expend \$50,000 for land purchase along Shoal Creek and other sections for park and playground development.

Tex., Big Lake—Big Lake Lions Club interested in development of golf course.

Tex., Port Arthur—Harry Swam, 2003 Proctor St., plans developing subdivision at intersection of Orange and Beaumont Rds.

Va., Montvale—Alva Farm Corp., capital \$25,000; incorporated; L. S. Abercrombie.

Va., Roanoke—South Hill Land Co., capital \$100,000, incorporated; Joseph Goldstein, 719 Marshall Ave. S. W.

W. Va., Charleston—Graceland Memorial Co., capital \$25,000, incorporated; James F. Fogarty, A. J. Grill.

Lumber Enterprises

Md., Baltimore—G. E. Waters & Co., 922 Park Ave., has plans drawn for \$10,000 building at lumber yard; 1 story, brick, 71x150 ft., slag roof; start work in 30 to 60 days; Frederick E. Beall, Archt., 334 St. Paul St.

Mo., St. Louis—Stolze Bros. Lumber Co., Edwardsville, acquired Belleville Lumber Co., William Kneipkamp, Pres., 600-06 S. S. Illinois Ave.; to be known as Sun Lumber Co.

Tex., Texarkana—Texarkana Oak Flooring Co., capital \$20,000, incorporated; H. K. Roberts, W. L. Greer.

Va., Norfolk—Priest Lumber Co., Inc., capital \$50,000, chartered; F. F. Priest, Hanover Ave.

Metal-Working Plants

Mo., St. Louis—Puhl & Hepper Mfg. Co., Inc., 573-79 Thekla Ave., capital \$15,000, incorporated; Edward P. Puhl, 5933 Lucille St.; operate sheet metal work plant.

Tex., Houston—Southwestern Can Co., Inc., John C. Cochran, Pres., 1207 Mary St., will prepare plans for \$100,000 plant to manufacture cans and other metal containers, Greenwood and Esperson St.; 1 story, 200x300 ft., 60,000 sq. ft. floor space, rein. conc., brick.

Mining

Ark., Batesville—George Terry, Batesville, Ark., and Thogmartin & Son, Fort Scott, Kans., started developing 2000 acres black marble; establish cutting and finishing plant here.

Fla., Tampa—See Miscellaneous Enterprise.

Louisiana—Jefferson Lake Oil Co., Arthur Barba, Sr., Pres., 905 New Orleans Bank Bldg., New Orleans, reported, start work within few months erecting \$1,000,000 sulphur plant to refine raw material brought up from borings in Lake Peigneur, near New Iberia; 250,000 tons yearly capacity; geological explorations of Dr. D. C. Barton and McCollom Exploration Co., Houston, Tex., show sulphur deposits cover 600 to 700 acres, probable depth of 200 ft., sulphur lying about 600 ft. below surface. (See Amarillo, La., 4-25-29)

Va., Richmond—Rutile Mines of Virginia, Inc., capital \$50,000, chartered; M. A. Hutchinson, 2605 Fendall Ave.

Miscellaneous Construction

Arkansas—See Memphis, Tenn.

Fla., Jacksonville—Paradise Amusement Co., Inc., C. E. Hillyer, Pres., 217 W. Church St., construct casino, swimming pool and docks and purchase glass bottom boats for amusement park; owner builds; Marsh & Saxelby, Archt., Consolidated Bldg.; W. E. Ruynolds, Engr.

Fla., Miami—State Road Dept., Tallahassee, will hold meeting at Orlando, May 6, on restoring levee on Tamiami Trail west of city, to relieve flood conditions caused by constructing highway.

La., Baton Rouge—Commission Council let contract to Nye Odorless Incinerator Co., Albany, Ga., at \$48,500, for complete garbage and refuse disposal plant, between Convention and North Blvd. 3-13

Maryland—Jetties—See Bridges, Culverts, Viaducts.

Missouri—See Memphis, Tenn.

Mo., St. Louis—Missouri Pacific R. R. Co., E. A. Hadley, Ch. Engr., reported, let contract to Edwin Ahlskog, 407 S. Dearborn Ave., Chicago, Ill., for 2,076,000-bu. addition to grain elevator, involving \$700,000; rein. conc., steel; to be complete about Aug. 1; E.

A. Hadley confirms report; work includes conc. storage with necessary conveyor legs, 2 additional scales and small carpenter shop and office; existing elevator has capacity of 2,000,000 bu.

Okla., Oklahoma City—Oklahoma City Mill & Elevator Co., J. G. Smith, V.-Pres., First and Frances Sts., drawing plans for rebuilding \$200,000 grain elevator recently burned.

Okla., Enid—Farmers Co-Operative Elevator Co., capital \$35,000, incorporated; L. L. Lamuyon, E. W. Perry.

Okla., Enid — Union Equity Co-operative Exchange, Glen Draper, Pres., Enid Bank and Trust Bldg., constructing 100,000 bu. grain conditioning elevator, N. 10th St.; conc. pouring for unloading pit and surrounding foundation walls completed; office complete; C. N. Herrian, Bison, overseeing construction; Roberts Construction Co., Gen. Contr., Sabetha, Kans. 3-13

Okla., Ponca City—Ponca City Milling Co. let contract to Jones-Hettelsater Construction Co., Mutual Bldg., Kansas City, Mo., for \$175,000 grain elevator addition with elevating, conveying, screening and other equipment.

S. C., Charleston—Port Utilities Comsn., J. D. Rooney, Gen. Mgr., let contract to Simons-Mayrant Co., Peoples Bldg., for shed, Columbus Street pier; approx. 11,200 sq. ft. storage space, 80x140 ft.

Tenn., Memphis—U. S. Engr. Office, McCall Bldg., reported, call for bids within 30 days for 5,773,000 cu. yd. levee work, including 700,000 cu. yd. at Cairo, Ill.; 1,958,000 cu. yd. in Lower St. Francis Levee Dist., from about 4 mi. above Point Pleasant, Mo., to about 14 mi. below, to be divided into 3 jobs; Lower St. Francis Levee Dist., just below Osceola, Ark., 750,000 cu. yd., divided into 2 jobs; Upper Yazoo Levee Dist., 1,865,000 cu. yd., divided into 4 jobs; White River Levee Dist., Helena, Ark., 1,000,000 cu. yd.

Tenn., Memphis — Ch. of Engrs. U. S. Army, Washington, authorized constructing 29,700 lin. ft. permeable pile dikes, Mississippi River; U. S. Engr. Office, McCall Bldg., Memphis, soon call for bids.

Texas—Game, Fish & Oyster Comsn., Beal Jester, Asst. Executive Secy., Austin, inspecting sites for \$25,000 fish hatchery.

Tex., Dallas—Park Board has permit for \$26,670 boat house.

Miscellaneous Enterprises

Ala., Andalusia — Alabama Textile Products Corp. installing additional machinery to manufacture dress shirts. (Recently incorrectly noted manufacture dresses) 4-3

Fla., Leesburg—Lake Griffin Pulp & Paper Co., C. E. Duncan, Secy., leased grass rights to 30,000 acres state land for paper pulp manufacture, under condition that corporation would erect mill to manufacture paper by expiration of 3-yr. period. 3-20

Fla., Panama City—Southern Kraft Corp., subsidiary of International Paper Co., 100 E. 42nd St., New York, reported, now erect \$10,000,000 kraft paper mill with 200-ton daily capacity; initial plant to be 2-machine unit, to be completed within a year; second 2-machine unit to be ultimately erected, each machine capable of producing 100 tons kraft paper annually; establish 15,000-kw. electric generating plant as part of general plant, to furnish power; acquired 300,000 acres pine lands and will eventually produce own pulp wood; erect 200 to 300 homes for workers; C. W. Cullen, V.-Pres., International Paper Co., in charge of Southern operations, president new firm; Maj. J. T. Friend, Supt., Southern Plants, vice president.

Fla., Seminole—Foster's Poultry, Inc., L. K. Foster, Pres., 3811 Fifth Ave., North, St. Petersburg, newly formed, acquired Oakhurst poultry farm; to be greatly enlarged.

Fla., Tampa—C. L. Knight, 101 E. Lafayette St., acquired plant, deep water terminal and other properties of Kriess Potassium Phosphate Co.; includes large mill for manufacture of phosphate, terminal warehouse and 1500 ft. water front, including 600 ft. of dock on 30-ft. channel.

Fla., Tampa—Cleo Co. of America, C. E. Owens, Gen. Mgr., acquired 2-story brick building, Polk and Pierce Sts.; started remodeling and renovation to cost \$15,000; manufactures syrup for bottling plants.

Ga., Columbus—S. C. Butler, Pres., Butler Bros. Co., 1347 Triangle St., acquired White Laundry, Inc., 2210 Wynnton Dr.

Ga., Savannah—United Shoe Shank & Findings Co., E. R. Laird, Pres., Harry O. Far-

rell, Ch. Engr., Whitman, Mass., let contract to T. R. Worrell, 101 E. 40th St., for \$100,000 plant; conc. footings, brick, comp. roof, steel sash; private plans. 4-3

Ky., Louisville—Directors of Inter-Southern Life Insurance Co. voted to increase capital stock, \$1,250,000 to \$3,500,000.

Ky., Louisville — Buttermann Ice Cream Co., capital \$40,000, incorporated; Peter K. Hollenbach, 4129 Cedar St.

La., Bogalusa—Bogalusa Paper Co., R. H. Laftman, Gen. Mgr., let contract to Dye & Mullings, Columbia, Miss., for building, first unit of expansion; plans for other additions to mills to be complete within next few days; buildings to be completed and machinery installed by Sept. 1.

La., Shreveport—Blue Ribbon Creameries, Dallas, Tex., ask bids in few days for \$25,000 plant, Claiborne Ave.; 1 story, brick, conc., 54x110 ft.; Flint & Broad, Archt., Melba Bldg., Dallas; Seymour Van Os, Asso. Archt., Merchants Bldg., Shreveport.

Md., Baltimore—Jewel Laundry Co., 616 Nisger St., incorporated; John W. Mentzer, 208 E. Lexington St.

Md., Baltimore—Victor G. Bloede Co., Victor G. Bloede, Pres., 703-709 Caton Ave., manufacturer of glue, paste, mullage, etc., through exchange of stock affiliated with Russia Cement Co., Gloucester, Mass., glue manufacturers; latter to move several departments here; expend approx. \$150,000 for plant additions; no change in personnel or name of local company.

Md., Easton—Maryland Independent Publishing Co., incorporated; William H. Valiant, Bellevue; David V. Hart, Easton.

Md., Pocomoke City—City Council and City Fire Dept. will purchase additional fire-fighting apparatus; ordered 1000-gal. pumper; will purchase chemical engine.

Mo., St. Louis—Morgenthaler's Cleaners & Dyers, capital \$75,000, incorporated; Albert J. Morgenthaler, 5429 Algernon St.

N. C., Charlotte—Mayor George E. Wilson, Jr., let contract to Home Real Estate & Guaranty Co., 219 N. Tryon St., for \$75,000 building, S. Church St.; Universal Film Exchange of Charlotte, Lessee.

N. C., Charlotte—Hello World Candy Co., incorporated; Alex H. Mundy, Tuckasee Rd.

N. C., Fayetteville—Bright Monday Laundry, Inc., capital \$25,000, chartered; Wm. Der Holt, W. B. Jennings.

N. C., Winston-Salem — Liggett & Myers Tobacco Co., Folsom and Tower Grove Ave., St. Louis, Mo., plans establishing packing plant and may acquire shipping warehouse site on Southern Ry. tracks.

Okla., Frederick—Frederick Creamery Co., incorporated; F. A. Kadane, 4915 Ross St., Dallas, Tex.; J. E. Kadane, Frederick.

Okla., Tulsa—O. R. Smith Bakeries, 2318 E. Admiral St., leased building, 619-21 S. Kenosha Ave., 4500 sq. ft. floor space; install modern equipment, to be in operation May 1.

Okla., Tulsa — Tulsa Overall Co., W. L. Brockman, Gen. Mgr., 1005-1009 E. Third St., plans enlarging plant.

S. C., Greenville—Following have sub-contracts in connection with \$200,000 bakery of H. H. Claussen & Sons: Steel sash, David Lupton, Alleghany and Hulp St., Philadelphia, Pa.; struc. steel, Greenville Steel & Foundry Co., 120 Markly St.; lumber, Wyssong Lumber Co., 227 Pendleton St., Greenville; face brick, Richland Shale Products Co., 2000 Taylor St., Columbia; common brick, Merry Bros., Marion Bldg., Augusta, Ga.; roofing, electrical, plumbing and painting contracts not let; Claussen-Lawrence Construction Co., Gen. Contr., 1394 Gwinnett St., Augusta, Ga. 3-13

Tenn., Old Hickory — Virginia Bridge & Iron Co., Madison Ave., N. E., Roanoke, Va., has contract for 1000 tons struc. steel for addition to plant of Du Pont Cellophane Co., Inc., Wilmington, Del.; to be erected under similar plan to unit in operation which includes 5-story chemical process building; brick, steel; now grading site and laying steel rails; Du Pont Engineering Co., Gen. Contr., Wilmington, Del. 3-27

Tenn., Memphis—De Soto Paint & Varnish Co., E. Railroad Ave., recently acquired by Sears, Roebuck & Co., Chicago, Ill., let contract to B-W Construction Co., 720 Cass Ave., Chicago, for addition to paint plant; 1 story, 35x35 ft.; includes boiler room, shipping room, tank room, warehouse, etc. 3-13

Tenn., Memphis—Klinke Bros. Ice Cream Co., Inc., W. B. Klinke, Jr., let contract to

Dan Kuhlman, 2013 Courtland Ave., for addition; 2 story, 65x20 ft., brick; to Carlross Well Supply Co., Inc., Front and Gayoso St., for 6-in. Cook well and Cook deep well turbine pump; Geo. Mahan, Jr., Archt., Manhattan Bank Bldg.

Tex., Fort Worth—City has low bid from F. J. Keller Co., Capps Bldg., Fort Worth, representing Hornal Signal Co., at \$68,886.50, for fire alarm station equipment.

Tex., Galveston—Shearn Moody, American Natl. Insurance Bldg., let contract to Bel-lows-Maclay Construction Co., Construction Industries Bldg., Dallas, for plant of laundry, 31st and N St.; conc., steel, brick, orna-stone trim, fireproof; install modern machinery from Troy Laundry Machinery Co., 2231 S. Parkway, Chicago, Ill., including washers and Prosperity presses; install elevators; plant to manufacture own electricity; Andrew Fraser, Archt., American Natl. Insurance Bldg. 2-27

Tex., Llano—Mrs. Robert Schneider erecting modern laundry, to be opened in few weeks; 24x40 ft.

Tex., Raymondville—Raymond M. Gilmore acquired Willacy County News.

Va., South Boston—Halifax Orange Crush Bottling Co., Inc., capital \$50,000, chartered; John Martin, Halifax.

W. Va., Martinsburg—Coca-Cola Bottling Works erect \$15,000 building, Winchester Ave.; 40x100 ft., 1½ story, brick, conc. block.

Motor Bus Lines and Terminals

Ky., Paducah — Smith Motor Coach Co., Frederick Smith, Washington and Front St., Memphis, Tenn., has plans complete for garage; 1 story, 173x86 ft., comp. roof, misc. steel and iron, conc. and wood floors; Jones & Furbringer, Archt., Port Bldg. 2-27

N. C., Greensboro—Stafford Motor Express, Inc., 235 N. Green St., capital \$25,000, chartered; G. R. Stafford, W. G. Beeson.

Tex., Corpus Christi—Southland Greyhound Line, Union Bus Terminal, San Antonio, seeking site for office building and terminal, Water St.; completing plans; take bids in few days; 50x125 ft., brick, hollow tile, rein. conc., Spanish type; include lobby, coffee shop, garage, etc.; \$12,000; Leo M. J. Diemann, Archt., 300 E. Commerce St., San Antonio.

Railways

Mo., St. Louis—Illinois Terminal Co., subsidiary of Illinois Terminal R. R. System, L. E. Fischer, Pres., St. Louis, applied to Interstate Commerce Comsn., Washington, for permission to lease Alton & Eastern R. R. Co., J. Duncan, Sd., Pres. and St. Louis & Alton Ry. Co., and operate as part of system.

Mo., St. Louis—Missouri-Kansas-Texas R. R. Co., G. E. Scott, Pur. Agt., ordered 100 70-ton all-steel general service hopper cars from General American Tank Car Corp., 230 S. Clark St., Chicago, Ill., to be constructed at East Chicago (Ind.) plant. 2-27

Tennessee—J. C. Sterchi, 2655 E. Magnolia Ave., Knoxville, reported, plans private railroad, 9 to 15 mi., and opening several new coal mines on 35,000-acre tract between La-Follette and Jellico.

Va., Norfolk—Virginian Ry. Co., D. C. King, Pur. Agt., reported, inquiring for 500 55-ton hopper car bodies.

Va., Petersburg—Seaboard Air Line Ry. Co., W. D. Faucette, Ch. Engr., Savannah, Ga., denies report that company will expend \$1,000,000 for improvements here; considering constructing steel viaduct. 4-10

West Virginia—Baltimore & Ohio R. R., H. A. Lane, Ch. Engr., Baltimore, construct 2736-ft. extension to siding at Bloom, costing \$47,956; 2040-ft. extension to siding at Irving, costing \$15,132, both in Harrison County; construction by Maintenance of Way Dept.

W. Va., Edwight—Chesapeake & Ohio Ry. Co., C. W. Johns, Ch. Engr., Richmond, Va., reported, authorized by Interstate Commerce Comsn., Washington, to construct extension of present line known as Garsh Fork extension of Cabin Creek branch, from Edwight to connection with Piney Creek branch at Surveyor, 19.2 mi., Raleigh County, costing approx. \$3,592,474. 10-31

Railway Shops and Terminals

Mo., St. Louis—Terminal R. R. Association of St. Louis, H. J. Pfeiffer, Ch. Engr., Union Sta., has permit for \$20,000 addition to locomotive shop, 515 S. 12th St.; 1 story, 85x150 ft. and 85x190 ft., comp. roof; owner builds; A. Ruehmann, Archt., Union Sta.

W. Va., Hinton — Graver Corp., W. M. Broxham, Sales Engr., East Chicago, Ind., advises regarding contract for water Tank for Chesapeake & Ohio Ry. Co., Richmond, Va., here, contract covers steel standpipe only and there will be no sub-contractors; steel plate purchased from Inland Steel Co., Indiana Harbor, Ind. 4-3

Roads, Streets and Paving

In connection with LAND DEVELOPMENT large sums are expended for roads, streets, paving and sidewalks. Details will be found under that classification.

Proposed Construction

Fla., Crestview—State Road Dept., Tallahassee, plans improving 3 roads in Okaloosa County: Grade 20 mi. Road No. 10, cost \$250,000; hard surface 7.9 mi. Road No. 10, from Niceville to Walton County line, cost \$90,000; hard surface 5 mi. Road No. 41, Milligan to Baker; B. M. Duncan, State Highway Engr.

Fla., Mayo—State Road Dept., Tallahassee, appropriated \$238,434 to hard surface Road 5-A, from Mayo, Lafayette County to Taylor County line.

Georgia—State Highway Bd., J. W. Barnett, Chmn., East Point, receives bids April 22 to pave State Route No. 8, between Lawrenceville and Winder; also for permanent bridges in Madison and Franklin Counties; W. R. Neel, State Highway Engr.

Georgia—State Highway Bd., J. W. Barnett, Chmn., Atlanta, receives bids April 22 for 4 roads and 13 bridges: Barrow-Oconee Counties—10.897 mi. grading Winder-Athens road, from Winder to Bogart, 111.847 cu. yd. excavation and borrow, 7840 lb. rein. steel; Gwinnett-Barrow Counties—15.979 mi. paving, Lawrenceville-Winder road, 48,565 cu. yd. excavation and borrow, 187,990 sq. yd. combination cement conc. base, 173,928 sq. yd. 2-in. bit. conc. surface, Warrenton bitulithic or bit. limestone (hot mix), or 1-in. sheet asphalt and 1½-in. asphalt binder; Paulding County—8.761 mi. grading and top soil, also 1 bridge on Dallas-Cedartown road, from near Dallas to Paulding, Polk County line, 224,506 cu. yd. excavation and borrow, 25,222 lb. rein. steel, 22,155 cu. yd. topsoil surfacing; 202-ft. bridge No. 1, 61,500 lb. rein. steel; Ware County—7.839 mi. paving, Waycross-Brunswick road, from Waycross to Ware-Brantley County line, 20,080 cu. yd. excavation and borrow, 96,588 sq. yd. limestone base, 12,419 lb. rein. steel; Dawson County—bridge across Etowah River, on Dawsonville-Cummings road, 20,000 lb. rein. steel, 48,000 lb. struct. steel; Madison and Franklin Counties—2 bridges over Hudson and Broad Rivers, on Danielsville-Royston road, 187,700 lb. rein. steel; 1085 sq. yd. 4-in. conc. paving; Wayne-Long Counties—10,072 sq. yd. bitum. bridge floor on 9 bridges on Jesup-Ludovick road; W. R. Neel, State Highway Engr.

Georgia—State Highway Bd., Atlanta, receives bids April 22 for conc. paving in Richmond and Jefferson Counties, on Augusta-Atlanta and Augusta-Louisville roads, 4,245 sq. yd. 9-6-9-in. paving; 368 sq. yd. 8-in. conc. paving; W. R. Neel, State Highway Engr.

Ga., Atlanta—City, I. N. Ragsdale, Mayor, received low bid from J. R. Cothran, Candler Bldg., at \$15,416, for 8,200 sq. yd. paving on 4 streets.

Ga., Douglas—Coffee County Comms., plan grading west end of Dixie Highway from Douglas to Irwin County line; plan building overhead bridge over A. B. & C. R. during 1930.

Ga., Eatonton—City Bd. of Council, L. M. Pennington, Mayor, receives bids April 29 for paving certain streets: 1470 ft. granite curb, 1610 ft. conc. gutter, 970 ft. 15 and 18-in. pipe, 4272 sq. yd. conc. pavement; J. R. Bachelor, Clk.; Harwood Beebe Co., Engrs., 208 Montgomery Bldg., Spartanburg, S. C.

Ga., Macon — Bibb County Comms. and Georgia Power Co., Frank L. Butler, V.-P., plan paving Bellevue Blvd. with conc.; S. R. Shi, County Engr. 4-3

Ga., Savannah—Chatham County, W. F. Brown, Engr., considering hard surfaced road connecting Louisville road from point near Pooler to industrial section on Savannah River north of Savannah.

Ky., Lexington—City Comms., Maj. W. C. Wilson, Commr. of Public Works, received low

bids totaling about \$30,000 for paving on 3 public thoroughfares and conc. sidewalks on 6 others; Carey-Reed Co.; F. T. Justice; Louis des Cognets.

Ky., Louisville—City, Bd. of Public Works, plans letting contracts before June 1 for street, alley and sidewalk building; A. A. Krieger, City Engr.

Louisiana — Louisiana Highway Comsn., Baton Rouge, receives bids May 14 for 10 roads and 2 bridges: Evangeline Parish—4 mi. conc., Ville Platte Highway; Lafourche Parish—7 mi. conc., Raceland Road; Jefferson Parish—2.1 mi. conc., streets of Gretna; Calcasieu Parish—8.8 mi. conc., Lake Charles-Texas Highway; Madison Parish—7.1 mi. conc., Mound-Delta Point Highway; Natchitoches Parish—11.66 mi. conc., Moreland-Meeker Highway; Rapides-Avoynes Parishes—8.1 mi. Cheneyville-Bunkie Highway; Terrebonne Parish—19 mi. conc., Humphreys-Lake Bridge Highway; West Carroll Parish—5.1 mi. gravel surface, Oak Grove-Mer Rouge Highway; Avoyelles-Rapides Parishes—9.7 mi. gravel surface, Archie-Marksville Highway; Richland Parish—bridges on Rayville-Delhi Highway—Rapides Parish—bridge over Bayou de Jean, on Boyce-Zimmerman Highway; H. B. Henderlite, State Highway Engr.

La., Cheneyville—Town, Mayor Bd. of Aldermen, receive bids April 22 for paving with conc. Front St., Klock to Jackson; conc. sidewalks on Klock from Front to Boyd; O. F. Reiszner, Engr., Barrett Bldg., Alexandria.

Maryland—State Roads Comsn., Baltimore, receives bids April 22 for 8 roads: Allegany County—1.66 mi. conc. shoulders, Legislative road, from Moscow to Barton, Cont. A-66-611; 4.7 mi. conc., from McCool to Westernport, Cont. A-64-62; Charles County—1 mi. gravel, Mason Springs-Pisgah road, from end of Cont. Ch-66 to Pisgah, Cont. Ch-79-82; 2.9 mi. conc. shoulders, Mattawoman to Waldorf, Cont. Ch-80-811; Kent County—34 mi. conc. with slag shoulders, from Betterton-Still Pond road, toward Lloyd Creek, Cont. K-46-25; St. Mary's County—5 mi. gravel, from Valley Lee road, through Dryden and 5 mi. from end of Cont. SM-37, through St. George's Island, Cont. SM-54-84; Worcester County—4.1 mi. conc., covering modification of curves at 2 railroad crossings on Berlin-Selbyville road, Cont. Wo-67-111; 99 mi. conc., Pocomoke-Cedar Hall road, end of Cont. Wo-63 toward Cedar Hall, Cont. Wo-73-14; L. H. Stewart, Sec.

Maryland—State Roads Comsn., Baltimore, received low bids for 7 roads and bridge: Allegany County—1.47 mi. conc. shoulders, National Pike, from Town Creek to top of Polish Mountain, Cumberland Construction Co., Cumberland, \$13,908; Anne Arundel County—1.04 mi. conc., from Stony Creek toward Jacksonville, Christliff & Ensey, 1625 Ridgely St., Baltimore, \$18,483; Calvert County—2.77 mi. gravel, from Southern Maryland Blvd. to Mt. Harmony, E. Ray James, Havre de Grace, \$21,890; Frederick County—1.07 mi. concrete, from Grossnickel toward Middlepoint, Poffnberger & Mause, Myersville, Md., \$46,676; Montgomery and Howard Counties—1.94 mi. conc., Cookeville-Olney road, from end of Cont. M-121 to end of Cont. Ho-44, Grove Lime Co., Marine Bank Bldg., Lime Kiln, Md., \$57,798; Washington County—4.66 mi. conc. shoulders, National Pike, from end of Cont. W-1B to Siding Hill Creek, Thomas, Bennett & Hunter, Westminster, \$40,109; 44 mi. conc., from Weverton toward Gapland, M. J. Grove Lime Co., \$17,042; Baltimore County—superstructure for bridge over tracks of Pennsylvania R. R. at Parkton, American Bridge Co., Continental Trust Bldg., Baltimore, \$9510; L. H. Stewart, Sec. 4-3, 3-27

Md., Baltimore—City Plan Comsn., W. O. Atwood, Chmn., approved opening Moravia Ave. from Belair road to Philadelphia road; Nathan L. Smith, Highways Engr.

Md., Frederick — Frederick County Comms., plan rebuilding 5 roads, and oiling, grading, etc., 2 roads: Ira Young road, from near Middletown to Burkittsville; Jefferson road, toward Point of Rocks; Penn's Shop-Kempton road; old Annapolis road; Daysville-Mt. Airy road; Glade Valley road; improve Cragerstown-Woodsboro pike; Adamstown-Buckeystown road.

Md., Towson—Baltimore County Comms., John R. Haut, Ch. Clk., receive bids April 22 to improve 3 roads in Twelfth Dist.: Widening .87 mi. conc., New Pittsburgh Ave. (Dundalk Ave.) Dundalk, from City line to North Centre; widening .16 mi. conc., St. Helena Ave. (Dundalk), from Willow Spring road to Central Ave.; .18 mi. curb

and gutter, Willow Spring road (Dundalk), from end of present curb to New Pittsburgh Ave.; Samuel A. Green, Roads Engr.

Miss., Greenville—Washington County Bd. of Supvrs., Howard Dyer, Clk., plans expending about \$1,000,000, during 1930 for new highways and repairs to roads damaged by floods of 1927.

Miss., Kosciusko — Attala County Bd. of Supvrs., plans expending \$250,000 for gravel roads in Separate Road Dist. See Financial News Columns. 3-27

Miss., McComb—City, Bd. of Mayor and Selectmen, plans expending \$35,000 to \$40,000 for sidewalk paving.

Mo., Perryville — State Highway Dept., Jefferson City, will let contract, in April for farm-to-market road, Perry County, from Uniontown to Altenburg; T. H. Cutler, Ch. Engr.

Mo., Rich Hill—City plans expending \$35,000 for street paving. See Financial News Columns.

Mo., Richmond Heights, St. Louis—Bd. of Aldermen, Geo. H. Skillman, City Clk., received low bid from Jack Steuby, 473 S. VanBuren, Kirkwood, Mo., \$6,565, to improve Moorlands Dr.; at \$10,457, to improve St. Albans St.

Mo., St. Louis—City, Bd. of Public Service receives bids April 29 to improve January and Wherry Ave.; rebuild Russell Place and Broadway.

North Carolina — State Highway Comsn., Raleigh, receives bids April 29 for 8 roads and 2 bridges: Dare County—10.6 mi. hard surface, Route 345; Lenoir County—1.6 mi. Route 12, approaches to bridge; Cumberland County—4.2 mi. hard surface, Route 53; Franklin County—4 mi. topsoil, Route 56; Guilford County—10 mi. hard surface, Route 10, widening 30-ft. boulevard; Montgomery County—3 mi. hard surface, Route 74; Gaston County—6 mi. topsoil, Route 275; John D. Waldrop, State Highway Engr.

N. C., Greensboro—Guilford County Comms., D. L. Donnell, County Mgr., considering improving 2 roads: Between point on State Highway No. 65, Bruce Township, and Flat Rock road, near Bruce and Oak Ridge township boundary; improve and maintain road in Crestwood, about 3½ mi. from High Point on Greensboro Highway; J. M. Weatherly, County Road Supr.

Oklahoma—State Highway Comsn., Oklahoma City, receives bids May 12 or May 19 for 5 roads: Garvin County—17 mi. conc., U. S. Highway No. 77; Love County—20 mi. conc., Highway No. 77; Carter County—about 8 mi. conc., Highway No. 77; Bryan County—15 mi. conc., Highway No. 75; Logan County—8 mi. conc., State Highway No. 33; probably some projects on U. S. Highway No. 8 will be included; A. R. Losh, Ch. Highway Engr.

Oklahoma—State Highway Comsn., Oklahoma City, receives bids April 21 for oiling highways in 11 counties, totaling 146 mi.: Rogers, Craig, Delaware Counties—20 mi., U. S. Highway No. 66, Claremore to Afton, about 120,000 gal. oil; Mayes and Wagoner Counties—40 mi. U. S. Highway No. 73, Muskogee-Wagoner County line, north to Pryor, 240,000 gal.; LeFlore County—24 mi. Highway No. 271, Poteau to Braden, 144,000 gal.; Choctaw and McCurtain Counties—16 mi. U. S. Highway No. 70, Fort Towson to Valiant, 100,000 gal.; Grady County—10 mi. Highway No. 9, Chickasha to Verden, 60,000 gal.; Lincoln County—16 mi. Highway No. 266, Meeker, east, 100,000 gal.; Caddo County—10 mi. Highway No. 9, Verden to Anadarko, 60,000 gal.; A. R. Losh, State Highway Engr.

Oklahoma—State Highway Comsn., Oklahoma City, receives bids April 28 for 2 roads and 2 bridges: Osage County—7.4 mi. grading, draining, bridge, Highway No. 25, west of Bartlesville; Woods County—9.7 mi. grading, draining, bridge, west of Alva; A. R. Losh, State Highway Engr.

Oklahoma—State Highway Comsn., Oklahoma City, receives bids May 15 for about 100 mi. conc. pavement; A. R. Losh, State Highway Engr.

Okl., Durant — State Highway Comsn., Oklahoma City, considering 20-ft. conc. highway from Durant to site of proposed bridge across Red River, Bryan County; cost about \$300,000; A. R. Losh, State Highway Engr.

Okl., Nichols Hill, Oklahoma City — City, S. Chester Davis, Pres., Bd. of Trustees, receives bids April 19 on 1½ mi. paving.

Okl., Poteau — State Highway Comsn., Oklahoma City, receives bids April 21 for 85,500 sq. yd. single course bit. surface treat-

ment on gravel base, on U. S. Highway No. 271, Le Flore County; A. R. Losh, State Highway Engr.

Tennessee—Dept. of Highways and Public Works, Nashville, plans extending, during 1930, State Highway No. 51, from Alabama State Line, in Giles County to Kentucky State line, state taking over county roads; Kentucky Highway Dept., Frankfort, will hard surface highway connecting with Tennessee link.

Tenn., Chattanooga—City, Roger Crox, Commr., plans expending about \$15,000 to grade, chert and lay double treatment of tar, on Duane Road, North Chattanooga, from Hixson Pike to Dallas road; W. H. Wilson, City Engr.

Tenn., Clinton—Anderson County Court, W. A. Brown, County Judge, considering road from Clinton to site of Cove Creek dam.

Tenn., Huntingdon—Carroll County Court plans expending \$350,000 to complete 217 mi. roads. See Financial News Columns.

Tenn., Knoxville—Knox County Highway Comsn., considering expending about \$165,000, for road improvement, etc., including rebuilding road near Knox-Loudon line, improving Welsgarder road, between Bearden and Middlebrook pike, etc.

Tenn., Nashville—Dept. of Highways and Public Works, receives bids not later than May 1 for 64-ft. pavement on Harding road, between city line and Belle Meade Blvd.; city to pave West End Ave. between Thirty-second and Thirty-fourth Sts.; Nashville Ry. & Light Co. to pave car tracks to end of line. 4-3

Tex., Archer—Archer County, H. V. Pearson, Judge, plans rein. conc. paving Highway No. 24, Young County line to Baylor County line, estimated cost \$175,500; W. H. Garrett, Acting Res. Engr.

Tex., Beaumont—Jefferson County considering expending \$1,089,500 for 24 road projects, including "Super-Highway," linking Beaumont with Port Arthur, College St. extension; Dryden Ferry road; asphalt topping beach road, from West Port Arthur to McFadden's beach; Shell and penetration asphalt, Grayburg-Nome road; shell Pine Island-Brooks road; shell Boyt road, etc.; B. B. Johnson, County Judge. See Financial News Columns. 2-20

Tex., Beaumont—City, Paul H. Millard, Mgr., considering paving Fifth, Forrest, Fourth, Second, Third and Foch Sts., and Avenue F; considering extending Jackson St.; R. C. Black, City Engr.

Tex., Beaumont—City, Paul H. Millard, Mgr., plans extending McFadden St., Magnolia to Willow; R. C. Black, City Engr.

Tex., Brownsville—Cameron County, Oscar C. Dancy, Judge, plans 11,412 mi. rein. conc. Highway No. 100, from Point Isabel west of present pavement, estimated cost \$250,000; W. O. Washington, Res. Engr.

Tex., Canton—Van Zandt County, S. L. West, Judge, plans 3,389 mi. grading, draining, Highway No. 15, Willis Point to Van Zandt, estimated cost \$33,900; D. H. Hogan, Res. Engr., Tyler.

Tex., Columbus—Colorado County plans expending \$500,000 for road building in Road Dist. No. 2. See Financial News Columns.

Tex., Corsicana—Navarro County, Clay Nash, Judge, plans 10,955 mi. grading, draining, Highway No. 31, from point east of Powell to Trinity River Bridge; J. W. Alger, Res. Engr.

Tex., Cotulla—State Highway Comsn., Austin, plans letting contract in May to pave section of highway in LaSalle County; Gibb Gilchrist, State Highway Engr.

Tex., Dallas—City Comsn., J. Waddy Tate, Mayor, receives bids soon to surface Cole Ave. with entirely new pavement, between Lemmon Ave. and Knox St.; John M. Young, City Engr.

Tex., Edna—Jackson County considering expending \$1,750,000 for system of hard surfaced roads through county. See Financial News Columns.

Tex., Fort Worth—Tarrant County, S. D. Shannon, Judge, plans 1,786 mi. grading, draining, Highway No. 121, from Highway No. 10 to Sta. 300 plus 00, via Birdville; M. C. Welborn, Res. Engr.

Tex., Houston—Harris County, Norman Atkinson, County Judge, plans letting contract for 20-ft. conc. paving and conc. bridge over Goose Creek and swamp land north of creek, on Pelly-Baytown road, \$200,000 available; also 12 mi. conc. South Houston-La Porte road, \$450,000 available; construction probably begin in about 60 days. 4-10

Tex., Houston—City, W. E. Monteith, Mayor, considering plans to pave Scott St. 25 ft. wide, from Polk to Leeland St.; cost \$16,800; H. L. Shaw, City Engr.

Tex., Marfa—Presidio County, W. T. Davis, Judge, plans highways through county; total cost about \$1,150,000.

Tex., Paducah—Cottle County, James M. Wheatley, Judge, plans 2 roads: 15.242 mi. Highway No. 28, from east city limits of Paducah to King County line; 3.789 mi. rein. conc. pavement, 11,418 mi. stone base, asphalt macad. top, and .035 mi. bit. conc. for bridges; 12,298 mi. rein. conc. Highway No. 4, from south city limits of Paducah to Foard County line; M. E. Savage, Res. Engr.

Tex., Palestine—City considering paving North Magnolia St., Crawford to Lacy, and Angelina St., Royal to Palestine-Elkhart Highway.

Virginia—State Highway Comsn., Richmond, received low bids for 2 roads and 2 bridges: Warwick County—8.159 mi. conc. Route 39, from Hilton Village to Lee Hall, Virginia Engineering Co., 322 25th St., Newport News, \$87,700; Chesterfield County—2.211 mi. conc., Route 31, from point south of Richmond, south; bridge over Falling Creek, C. S. Luck & Sons, Inc., 1617 Brook Rd., Richmond, \$60,567; Rockbridge County—162-ft. rein. conc. beam spans, bridge over Goose Creek, at Natural Bridge Station, Route 14, Blount & Hayman, Broadnax, Va., \$10,152. 4-3

Virginia—State Highway Comsn., Richmond, receives bids Apr. 29 for 5 roads and 2 bridges: Southampton County—9.6 mi. gravel, Route 52, Zuni to Southampton County line, 106,538 cu. yd. excavation, 19,534 lb. rein. steel, 31,491 cu. yd. gravel; Prince George County—9.7 mi. gravel, Route 52, from Prince George County line to New Bohemia, 94,757 cu. yd. excavation, 25,245 lb. rein. steel, 31,596 cu. yd. gravel; Roanoke County—4.7 mi. macad., Route 33, from Roanoke north, 25,219 cu. yd. excavation, 83,046 sq. yd. macad.; Giles County—105-ft. bridge over East River, Route 23, near Glenlyn, 105-ft. low steel truss, three 40-ft. rein. conc. spans, 66,520 lb. rein. steel, 118,800 lb. struct. steel, 1,003-ft. bridge over New River, Route 23, near Glenlyn, seven 25-ft. conc. beam spans, four 200-ft. steel truss spans, 175,500 lb. rein. steel, 1,204,000 lb. struct. steel; C. S. Mullen, Ch. Engr.

W. Va., Bluefield—City, C. E. Lilley, Mayor, plans widening Ramsey St. to 34 ft., Bland to Russell; Russell St. 34 ft., Ramsey to Princeton Ave.; Raleigh Terrace 37 ft. Scott to Monroe.

Contracts Awarded

Ala., Jasper—Walker County Bd. of Revenue let contract to Files & Sweat, Carbon Hill, for surfacing 2 roads, totaling 33 mi., with red rock; 19 mi. Nauvoo-Jasper road; about 14 mi. Corano-Coal Valley road. 1-23

Ala., Tuscaloosa—State Bd. of Administration, Montgomery, has contract for 28 mi. cement conc. paving, Tuscaloosa-Birmingham Highway, from Tuscaloosa to Jefferson County line; work to begin on or about April 15.

Ark., De Queen—City Commrs. let contract to O. Yenglin, Texarkana, \$136,217, for grading, and 53,000 sq. yd. conc. paving, in Dist. No. 1.

D. C., Washington—U. S. Dept. of Agriculture, Bureau of Public Roads, Thos. H. McDonald, Ch. of Bureau, Washington, let contract to Vincent Schiavi, Buffalo, N. Y., at \$435,890, for grading and draining Unit 2 of Mount Vernon Memorial Highway, using vitrified pipe. 12-26

Kentucky—State Highway Comsn., Frankfort, let contracts for 5 roads: Meade County—3.677 mi. 16-ft. trafficbound macad., Flaherty-Hog Wallow road, Ingle & Baird, Hodgenville, \$13,872; 2.858 mi. 16-ft. trafficbound macad., Millers Mill-Ekron road, Ingle & Baird, \$11,438; Wolfe County—4.083 mi. grade, drain, Stillwater-Mixe road, North Fork Construction Co., Jackson, Ky., \$42,457; Clark County—10.344 mi. grade, drain, Winchester-Irvine road, Codell Construction Co., Winchester, \$159,007; Kenton County—1.152 mi. grade, drain, 20 and 35-ft. rock asphalt surface, Covington-Constance road, Andrews Asphalt Paving Co., Covington, \$99,955; J. S. Watkins, State Highway Engr. 11-7, 1929, 4-3

Ky., Louisville—City, Bd. of Public Works, let contracts totaling \$186,419, for street and sidewalk paving on various streets: Louis-

ville Asphalt Paving Co., 240 E. Lee St.; Henry Bickel Co., Inc., 435 Garden St.; G. M. Eady Co., 340 Byrne St.; F. G. Breslin, Thirty-second and Market St.; J. U. Schickl & Bros., 1300 West Oak St.; Andrews-Collings Asphalt Co., Inter-Southern Bldg.; E. Brewer, 1235 W. Jefferson St.; Kamper-Gadlage Co., 1127 E. Brick St.; Woodruff & Co., 1050 Barret St.; J. H. Koch & Sons, 1712 S. Eighteenth St.; H. C. Showalter, 1443 S. Third St.; A. C. Kaufman, 135 Bellaire St.; C. W. McFarland, 1220 River road; A. A. Krieger, City Engr. 3-6

La., Columbia—Louisiana Highway Comsn., Baton Rouge, let contract to Ziegler Construction Co., S. Green St., Greensboro, N. C., for 5.6 mi. conc., Columbia - Grayson Highway, Caldwell Parish; H. B. Henderlite, State Highway Engr. 2-27

La., Monroe—City, Arnold Bernstein, Mayor, let contract to M. Hyman, 305 Park Ave., Monroe, at \$39,673, for 7 blocks paving on Washington and Fourteenth St.; I. W. Neel, City Engr. 3-20

La., Oak Grove—Town, R. V. Reeves, Clk., let contract to J. B. McCrary Co., Citizens & Southern Bank Bldg., Atlanta, Ga., at \$7,974, to pave with conc., curb, gutter, drain, grade, etc., Main St. Briggs to street paralleling railroad right of way; James M. Fournay, Town Engr. 3-20

La., Vidalia—Richard S. Wilds, Jr., Wildsville, has contract to gravel Monterey-Wild-crow Highway, Concordia Parish.

Md., Baltimore—City, Bd. of Awards, let contract to Arundel Construction Co., 1910 Trinity St., at \$9,574, for conc. curbs in Curb Cont. No. 552; to Guzzo Construction Co., 1209 N. Eden St., at \$34,145, for footways in Footway Cont. No. 115; to Arundel Construction Co., at \$20,321, for alleys in Alley Cont. No. 138; Nathan L. Smith, Highways Engr.

Miss., Belzoni—Humphreys County Commrs., Main Separate Road Dist. of Supvrs. Dist. No. 4, A. B. Hutchens, Clk., let contract to Midland Construction Co., Clarksdale, for material and construction on 24 mi. public roads: 377,000 cu. yd. road dirt fill; about 7.5 mi. machine road grading; 3.6 mi. clearing, etc. road right of way; 800 lin. ft. 12 to 48-in. culvert pipe; W. J. Price, Engr. 3-13

Miss., Meridian—Lauderdale County Bd. of Supvrs. let contract to Boddie Construction Co., Miss. Drug Bldg., Laurel, to gravel 2 roads in Beat 2: 2 1/4 mi. Lauderdale-Cuba road; 1 1/4 mi. Lauderdale-Kewanee road.

Miss., Rosedale—Bolivar County Bd. of Supvrs. let contract to J. W. Mullins, Holly Springs for graveling about 45 mi. road in and near Merigold; B. E. McDearman, Engr., Cleveland, Miss.

Miss., New Augusta—Perry County Bd. of Supvrs. let contract to Richton Investment Co., Richton, at \$24,779, for 4.833 mi. gravel Richton-Plave road, from Richton to survey east of Richton, all in Richton Separate Road Dist., Beat No. 3; J. L. Wheelless, Engr., Carter Bldg., Hattiesburg. 4-3

Miss., Waynesboro—Town, Mayor and Bd. of Aldermen, let contract to Cotton States Construction Co., Birmingham, Ala., \$32,486, for 12,000 sq. yd. paving, 6,700 cu. yd. grading, storm sewers, etc.

Missouri—State Highway Comsn., Jefferson City, let contracts for 29 roads: Boone County—4.291 and 4.991 mi. 20-ft. conc., S. J. Groves & Sons, Minneapolis; Callaway County—2.447 mi. 20-ft. conc., S. J. Groves & Sons; Cape Girardeau County—2.291 and 3.406 mi. 20-ft. conc., E. L. Markham, Cape Girardeau; Laclede County—4.045, 4.164, 4.678 mi. 20-ft. conc., Garrett Construction Co., 211 1/2 E. Commercial St., Springfield; 2.891 mi. 20-ft. conc., Davis Construction Co., Booneville; Pulaski County—4.168 and 4.939 mi. 20-ft. conc., Davis Construction Co.; Webster County—869 mi. 18-ft. gravel, H. D. Thomas, Fulton; St. Louis County—2.239 and 3.413 mi. 20-ft. conc., W. F. Smith & Co., Rensselaer, Ind.; Andrew County—4.146 mi. 20-ft. conc., C. H. Atkinson Paving Co., Watertown, S. Dakota; Cape Girardeau County—829 mi. 20-ft. conc. and 18-ft. gravel, E. L. Markham; Ray County—654 mi. 9-ft. conc., Ebbo Construction Co., Trenton, Mo.; St. Louis County—1.308 mi. 56-ft. conc., W. F. Smith & Co.; Bollinger County—3.865 and 3.847 mi. 16-ft. gravel, Carte-Harlin Construction Co., West Plains; Ozark County—4.986 mi. 18-ft. gravel, Carte-Harlin Construction Co.; Ralls County—2.386 mi. 18-ft. gravel, F. T. O'Dell, Hannibal; Scotland County—4.735 and 4.971 mi. 18-ft. gravel, Graham Bros., Leeds, Mo.; Franklin County—2.493 and 2.831 mi. 30-ft. graded earth, J. P. Sparks Construction Co., Kirk-

wood; Monroe County — 3.177, 3.648 and 4.204 mi. 30-ft. graded earth, S. J. Groves & Sons; T. H. Cutler, Ch. Engr. 3-20

Okla., Ardmore—State Highway Comsn., Oklahoma City, let contract to Dan Blackburn, Haldton, for ½ mi. grading, road in Carter County, from Murray County line south.

Okla., Oklahoma City—City, M. Peshek, Jr., Clk., let contract to Earl W. Baker Co., Perrine Bldg., at \$32,196, for 7-in. conc. paving South Twenty-ninth St.; to Western Paving Co., 610 E. Grand St., \$11,500, for 2-in. rock asphalt on conc. base paving Broadway.

Okla., Tulsa—City, Dan W. Patton, Mayor, let contract to Porter Construction Co., Lewis and Frisco tracks, \$15,568, for paving in Dist. No. 1023; K. R. Teis, City Engr.

Okla., Tulsa—City, Dan W. Patton, Mayor, let contract to Standard Paving Co., 2119 E. Eleventh St., \$26,645, for paving Thirty-sixth Place; to Carl Pleasant, Inc., 229 N. Nogales St., \$58,119, for widening Peoria Ave.; K. R. Teis, City Engr.

Tennessee—Dept. of Highways and Public Works, Nashville, let contracts for 2 roads: Morgan County—7.616 mi. paving, State Highway No. 29, Bitter Creek to Warburg, John L. Humbar Construction Co., General Bldg., Knoxville, \$457,292; McNairy-Hardin Counties—9.602 mi. grading, draining between Milledgeville and Sallito, Mason-Payne Co., Benton, Ky., \$119,030; T. E. McEwen, State Highway Engr. 3-13

Tex., Crane—L. W. Pelphrey, Breckenridge, has contract for \$500,000 highway paving across Crane County; will start work soon.

Tex., Harlingen—City let contract to F. P. McElwath, Harlingen, at \$57,042, for about 20 blocks paving; to L. G. Nichols for gravel road from city to incinerator under construction. 3-20

Va., Charlottesville—City, H. A. Yancey, Mgr., let contract to Atlantic Bitulithic Co., Munsey Bldg., Washington, D. C., at \$45,645, for paving Market St., Seventh St., N. E. to Eighth St., N. W. 4-3

West Virginia—State Road Comsn., Charleston, let contracts for 2 roads: Marshall County—3.1 mi. retread surface course, Lindsay Hill-Round Bottom road, W. F. Burgess, \$16,791; Mingo County—6 mi. retread surface course, Nolan-Naugatuck road, Southern Oil & Tar Co., Clay St. and River Rd., Louisville, Ky., \$28,830. 4-10

Sewer Construction

Sewer construction in LAND DEVELOPMENT projects involves the expenditure of large sums of money. Under that classification details of these improvements are reported.

Ala., Montgomery—City, W. A. Gunter, Mayor, receives bids soon for sanitary sewer improvements.

D. C., Washington—Dist. Comrs., J. B. Gordon, Sanitary Engr., 309 District Bldg., let following sewer contracts, totaling \$56,000; W. J. McLane, 2402 Hawthorne Ave., Richmond, Va., for Clay St. and Dix St. service sewer; W. A. Pate, Jr., Rockville, Md., for Sheridan Park service sewer; Peter D'Adamo Construction Co., Marine Bank Bldg., Baltimore, Md., for North Shepherd Park sanitary sewer; M. Cain, Co., Inc., 13 Sixth St., N. E., for E. Brightwood Service sewer and Juniper St., sanitary sewer; Warren F. Brenizer Co., 101 New York Ave., N. E., for Foote St. service sewer and 3rd St. replacement sewer; Logan Pingree Co., Inc., Garfield Ave., N. W., for Sixth St. and M St., replacement, 3rd St., S. E. replacement, 22nd St., N. W., replacement and Pennsylvania Ave. replacement sewer. 4-3

Fla., St. Petersburg—City, E. C. Reed, Director of Public Works, advises are not contemplating any sewer work now. 4-10

Ky., Louisville—Comms. of Sewerage receive bids April 29 for Crittenden Drive Sewer, Contr. No. 46; project is fifth of series of sewers to be constructed from proceeds of \$10,000,000 bond issue approved Nov. 6, 1928. See Want Section—Bids Asked. 4-10

La., New Orleans—Following contractors estimating on sewer projects bids to be opened by Sewerage and Water Bd., April 30: Contract 209-D, constructing masonry lined canal in Orleans Relief canal from Broad St. to Jefferson Davis Parkway; Thos. H.

Brockman, Canal Bank Bldg.; H. W. Bond & Bros., 816 Howard Ave.; John B. Mooney, 3600 Dumaine St.; H. Pratt Farnsworth, Canal Bank Bldg.; H. N. Moody, 815 Perdido St.; A. N. Goldberg, Louisiana Bldg.; J. B. McCrary Co., 816 Howard Ave.; O. M. Gwinn Construction Co., 3503 Fern St.; Fuller Construction Co., 3117 Palmetto St.; Contract 112-D riveted steel pipes for drainage pumping station No. 2; Equitable Equipment Co., Inc., 410 Camp St.; John H. Murphy Iron Works, Inc., 700 S. Broad St.; National Tube Co., Maison Blanche Bldg.; C. C. Elmer Tank & Boiler Works, Jefferson Highway, all of New Orleans; Chicago Bridge & Iron Works, Birmingham, Ala.; Biggs Boiler Works Co., Akron, O.; Heat Transfer Co., 30 Church St., New York; Contract No. 106-S, 107-S, 108-S, sewers in Lakeview, Gentry Terrace, Edgewood; H. Pratt Farnsworth; John R. Mooney, H. W. Bond & Bros., J. B. McCrary Co., (Addresses given above) and A. P. Boh & Co., 837 Perdido St.; Contract 205-S; Fulton Iron Works Co., New Orleans Bank Bldg.; Crane Co., 1148 S. Peters St.; Chapman Valve Mfg. Co., Neville & Cleary, Inc., both Union Indemnity Bldg., representatives; Buckmaster, Luck, Malochie, Inc., 617 Common St.; Columbia Contracting Co., 2 Lafayette St., N. Y.; Hardie-Tynes Mfg. Co., Birmingham, Ala.; Coldwell-Wilcox Co., Newburg, N. Y.; Michigan Valve & Foundry Co., 2631 Parkinson St., Detroit, Mich.

La., New Orleans—Sewerage and Water Bd., authorized call for bids for construction of Florida Ave. Canal link in \$14,000,000 sewerage, water and drainage program; cost of unit \$850,000; will probably let contract to Fairbanks, Morse & Co., 900 S. Wabash Ave., Chicago, Ill., at \$98,207 for installation of frequency changers, switchboards and accessories for sewerage system plants. 3-27

La., New Orleans—Sewerage and Water Bd. receives bids May 21 for following work: Contr. 108-D, welded steel pipe for Drainage Station No. 9; Contr. 113-D, travelling crane for Drainage Station No. 9; Contr. 116-D, steel pipe for Drainage Stations, No. 3 and 7; Contr. 117-D, truck type switchboards, motor generators, transformers, controls and accessories for Drainage Stations, 3 and 7; Contr. 206-S, welded steel pipes, for Sewer Station D; Contr. 207-S, e. l. pipe and fittings for Station D; Contr. 210-D, lined canal in Florida Ave. canal between Louisa St. and Drainage Pumping Station, No. 3; under terms of Contr. 100-D, entered into with Dibert, Bancroft & Ross Co., Ltd., 3400 Tulane St., Bd. ordered total of 12 pumps.

Miss., Waynesboro — See Roads, Streets, Paving.

N. C., Durham—City, reported, received low bid from Borden Brick & Tile Co., 606 Ramseur St., Durham, for 10 carloads clay pipe and fittings for sewer program.

Okla., El Reno—City, J. H. Bender, City Mgr., construct sewer in Hill Crest Addition.

Okla., Oklahoma City—See Water Works.

Okla., Nichols Hill, P. O. Oklahoma City—Town votes April 23 on \$575,000 bonds for public improvements including \$125,000 storm sewers, \$150,000 for sanitary sewers, \$250,000 for water works and \$50,000 for parks. 4-10

Okla., Tulsa—W. B. Carter, 7 N. Rockford St., reported, has contract for sewer in Dist. No. 298.

Va., Charlottesville—City, H. A. Yancey, City Mgr., receives bids May 10 for \$200,000 sewers; plans and specifications now being prepared. See Want Section — Bids Asked.

Telephone Systems

Ark., Little Rock—Joe E. Phelps, 522 Harrington St., authorized by Federal Radio Comsn., Washington, to construct broadcasting station, 500 watts, 1250 kilocycles.

Fla., Jacksonville—Telfair Stockton Co., H. B. Merritt in charge, completing plans for \$300,000 building, Laura and Duval St.; 5 story and basement, 105x100 ft., rein. conc. struc. steel, brick, tile, terra cotta trim, built-up roof; Marsh & Saxelbye, Archts., Consolidated Bldg.; Stone & Webster Engineering Corp., Engr., 49 Federal St., Boston, Mass. 1-16

Fla., Miami Beach—Southern Bell Telephone & Telegraph Co., Atlanta, Ga., let contract to Barge-Thompson Co., 136 Ellis St., N. E., Atlanta, Ga., for \$25,000 telephone building.

Ga., Carrollton—Southern Bell Telephone & Telegraph Co., 67 Edgewood Ave., S. E., Atlanta, acquired interest of local stockholders of Gainsboro Telephone & Telegraph Co.

Ky., Harrodsburg—Southern Bell Telephone & Telegraph Co., 67 Edgewood Ave., S. E., Atlanta, let contract to Ciel Coleman & Sons for \$20,000 building; brick, Colonial type.

Missouri—United Telephone Co., subsidiary of United Telephone & Electric Co., Abilene, Kans., authorized by State Public Service Comsn. to acquire telephone companies and systems in numerous Missouri cities.

Mo., Kansas City—Cook Paint & Varnish Co., 14th and Knox St., acquired Radio Station WHB, of Sweeney Auto School, 1615 Grand Ave.

Textile Mills

Ala., Gadsden—Sauquoit Spinning Co., Inc., formed as subsidiary of Standard Coosa-Thatcher Co., Thomas H. McKinney, Pres.; will take over and operate Sauquoit Spinning Co.'s yarn mill.

La., Hammond—Chamber of Commerce, reported, negotiating with Laurel Knitting Mills, Laurel, Miss., for establishment of knitting mill.

Miss., Corinth—Dave Cottrell, Mgr., Industrial Dept., Mississippi Power Co., Gulfport, reported, negotiating for establishment of textile mill from Reading, Pa.; will be known as Full Fashioned Hosiery Co.

N. C., Asheville—Bossong Hosiery Mill, receiving bids for \$40,000 addition to plant; brick walls; conc. footings; tar and gravel roof; plans by Lockwood Greene Engineers, Inc., Wilson Bldg., Charlotte; following contractors estimating: Burrow & Lamb, Asheville; Southeastern Construction Co., 210 W. Second St.; T. C. Thompson & Bros., 609 N. Smith St., and Blythe & Isenhour, Brevard Court, all Charlotte; R. K. Stewart & Son, S. Hamilton St., High Point; Fiske Carter Construction Co., 121½ W. Main St., Spartanburg, S. C.; Brown-Harry Co., 237 E. Main St., Gastonia. 3-20

N. C., Bessemer City—Gastonia Thread Yarn Co., Inc., chartered; Robert Goldberg, Fairmount Park, Gastonia.

S. C., Greenville—Camperdown Co., Inc., capital \$300,000, incorporated; Sydney Bruce, 12 Washington Place; new company has complete ownership of Camperdown Mill, 14,000 spindles and 25 acres of land.

Tenn., Greenville—Greene County Chamber of Commerce, reported, negotiating with outside capitalists for full fashioned hosiery mill.

Tex., Houston—Mente & Co., Inc., 1430 S. Peters St., New Orleans, La., advises will not require any additional machinery nor buildings in purchase of property in Houston; will develop as required; Maurice Greenfield, 2512 Ideal St., Branch Mgr., Houston plant; manufactures burlaps, bags and bagging. 4-10

Va., Hopewell—Tubize Chatillon Corp., B. G. Slaughter, Pres., E. R. Van Vliet, Sec. and Treas.; company has no definite plans for new plant, but is working on rounding out and improving existing plants during this year; administration offices of company 2 Park Ave., N. Y. 3-20

Water Works

Details of water works improvements in connection with the many LAND DEVELOPMENT operations will be found under that classification.

Ala., Selma—Wiedeman and Singleton, Inc., Engrs., 1404 Candler Bldg., Atlanta, Ga., advise water works improvements will consist of 1,000,000 gal. capacity covered conc. reservoir, together with connecting pipe lines; specifications ready for distribution within a week, bids to be called May 8. See Want Section—Bids Asked.

Ark., Fort Smith — R. E. McDonnell of Burns & McDonnell Engr. Co., 402 Interstate Bldg., Kansas City, Mo., and associates, reported, proposed financing new water supply from Lee's Creek; cost about \$1,040,000; plans include construction of impounding dam in watershed of Lee's Creek, build series of dams.

Ky., Ashland—Water Works Comsn. receives bids May 1 for filter plant addition, See Want Section—Bids Asked.

Ky., Louisville—Louisville Water Co., 435 S. Third St., expend \$25,000 for improvements water mains.

La., Franklinton—Police Jury, Washington Parish, receives bids May 2 for drilling 4-in. artesian well in town.

La., Shreveport—Laclede Steel Co., Arcade Bldg., St. Louis, Mo., reported, has contract for 250 tons steel for water works. 4-10

La., Thibodaux—Town receives bids April 29 for c. l. pipe and fittings, steel pipe, filtration equipment, pumps, etc. See Want Section—Bids Asked.

Md., Baltimore — J. Matricciani, 229 S. Exeter St., low bidder at \$21,370 for Elm-tree St. trenches.

Md., Baltimore—Bd. of Estimates, upon recommendation of Public Improvement Comn., created construction bureau of Prettyboy Dam, Baltimore County, under supervision of Charles F. Goob, Ch. Engr.; dam and impounding reservoirs, with estimated capacity of 20,000,000 gal., cost \$3,500,000. 2-6

Miss., Eupora—Town, Mrs. T. B. Foard, Clk., receives bids May 6 to drill, equip and install water wells.

Miss., Hazlehurst—Cobb Bros. Construction Co., reported, has contract for laying water mains on Georgetown St. 3-13

Miss., Nettleton — Town considering installing water and sewer system; R. L. Trotten, Engr., Brown-Marx Bdg., Birmingham, Ala.

Miss., Oakland—Town will probably vote on bonds for improving and enlarging water system.

Miss., Sardis—Bd. of Aldermen receives bids May 6 for pumping plant and office; T. B. Trotter, City Engr.

Miss., Vardaman—Town receives bids May 6 for following material for water works extension; service boxes, gate valves, lead and oakum, casing, etc., J. E. Whitehorn, Clk.

Mo., Warsaw—John M. Monie, Chemical Bldg., St. Louis, has contract at \$61,800, for water works; city plans construction of sewers; Black & Veatch, Engrs., 700 Mutual Bldg., Kansas City. 4-3

N. C., Charlotte—City, R. W. Riggsby, Mgr., receives bids April 29 for constructing 30-in. water main from raw water reservoir to city filtration plant. See Want Section—Bids Asked.

Okla., Chickasha—City defeated \$265,000 bonds for water works extension. 3-20

Okla., Clinton—City receives bids April 22 for furnishing labor, tools and materials for construction of water supply improvements and extensions; plans and specifications by Benham Engineering Co., Constl. Engrs., Perrine Bldg., Oklahoma City. 4-10

Okla., Nichols Hill, P. O. Oklahoma City—See Sewer Construction.

Okla., Oklahoma City—City Water & Engineering Dept., reported, has tentative improvement program for 60 miles water mains cost \$600,000, and sewer extensions and bridges, \$3,000,000.

Okla., Tulsa—City Comn. received report of W. R. Holway, Engr., on proposed extensions to Spavinaw water system; program, covering 12 years, includes beginning in 1930 second Mohawk reservoir to develop full capacity of conduit and construct low service pump in station; install new 20,000,000 gal. high-service pump; following work to be done includes raising Spavinaw dam 6 ft. and make second connection from dam to present pipeline, construct 15,000,000 gal. high service reservoir on southwest side of city; build 2 new filter units and mixing basin; new force main; remainder of new conduit from Spavinaw to Mohawk, etc. 11-28

Tenn., Memphis — City, James Sheahan, Supt. Water Dept., expend \$43,000 for additional expansion of water mains to Buntyn and Normal and 6-in. main on Hanauer St.; purchased 50 tons of lead pipe from Standard Sanitary Mfg. Co., 1200 Jackson St., Dallas, Texas. 4-3

Tex., Ballinger—Brown & Root, Austin, reported, have contract at \$35,000 for extension to water works dam; Chicago Bridge & Iron Works, 1305 W. 105th St., Chicago, at \$10,000 for 250,000 gal. capacity steel water reservoir. 4-3

Tex., Houston — City, reported, locate water well on 8 acre site East End near Pine, Bellevue and Park Terrace, capacity 1500 gal. per minute; construct \$428,000 water station; J. A. Sauls, Ch. Water Engr. 4-3

Va., Manassas—See Electric Light and Power.

West Virginia — National Water Works Corp., 11 Broadway, New York, reported, acquired Logan Water Co. and Pure Water Co., serving Logan and Mt. Gay, W. Va.

Woodworking Plants

Mo., Kansas City—O. G. Bernard Furniture Co., incorporated; J. K. Kramer, 4009 S. Benton Blvd.

Tex., El Paso—Madera Box & Lumber Co., L. B. Hoard, Pres., 1300 S. Stanton St., acquired controlling interest in El Paso Sash & Door Co.

FIRE DAMAGE

Ark., Forrest City—Sam H. Mann's 6 stores; loss \$12,000.

Ark., Texarkana—State Line Lumber Co.'s 2 dry kilns and box plant storage house; loss \$50,000.

D. C., Washington—Hangar and parachute building, Bolling Field; loss \$30,000; Maj. H. C. Davidson, Commandant of Bolling Field.

Ga., Atlanta—Doctors' Bldg., Peachtree St.; loss \$500,000, including equipment.

Ga., Decatur—First Methodist Church Sunday school annex, loss \$40,000, and 8 garages of Columbus Court Apts.

Ga., Tennesse—Newsome Hotel in Glascock County; loss \$12,000; address The Proprietor.

Ga., Thomasville—J. L. Phillips' residence, Boxhall Plantation; loss \$100,000.

Ky., Midland—McDonald Coal Mining Co.'s 2 stores.

Ky., Ravenna—Building owned by J. M. Durbin and Walter Bush; loss \$15,000.

Miss., Magnolia—Dry Kiln at Lansing's sawmill.

Miss., Mendenhall—Simpson County jail; loss \$40,000. Address Bd. of Supvrs.

Miss., McHenry—H. S. James' store; H. W. Legett's store; Mrs. Grace Giles' building; H. C. Williams' barber shop; loss \$30,000.

Miss., Tupelo—Residences of W. F. Sheriff and O. T. Trapp, both Gloster St., former

occupied by R. P. Tate and Carl Grubbs; loss \$20,000.

Miss., West Point—West Point Casket Co.'s plant; A. H. Ingram and E. K. Ingram, owners.

Okla., Altus—City light and power plant; loss \$300,000.

Okla., Duncan—Loco Drug Store; Tucker Hotel; Masonic Hall; Ford Garage; loss \$20,000.

Okla., Oklahoma City—Oklahoma City Mill & Elevator Co.'s grain elevator, First and Frances St.; loss \$200,000; Sherman Machine & Iron Works' plant, 18 E. Main St.; loss \$15,000.

Okla., Washita — C. R. Henry's store; Thomas Hotel.

S. C., Barnwell—Mrs. A. E. Hartin's residence, Washington St.

Tenn., Erwin—Erwin General Hospital, College Hill, owned by R. M. Barry and French Broyles; loss \$30,000.

Tenn., Madison—A. E. Spotswood's residence, Gallatin Rd. near Madison.

Tex., Dallas—Building occupied by E. C. Allen Automobile Storage Co., 1110 Camp St.; loss \$20,000; Ira T. Moore, 3905 Rawlins St., Owner.

Tex., Dallas—New Dallas Hotel, Commerce St. and Jefferson Ave., owned by Yonack Brothers; Dixie Motor Coach Co.'s shops, 605-11 Jackson St.; J. Finks Dry Goods Co.'s store, 604 Commerce St.; Rex Hotel; Burton Barber College, 602 Commerce St.; loss \$100,000.

Tex., Sabine—Union Sulphur Co.'s docks and loading chutes; loss \$25,000.

Tex., Tyler—Cone Johnson's building, damaged; loss \$10,000.

Va., Norfolk — Interior of Academy of Music on Main St., owned by Grandy Estate, Dr. C. R. Grandy; loss \$50,000.

Va., Norfolk — Several vacant dwellings, Elizabeth St., owned by B. Cohen, 814 Liberty St.

Va., Richmond—American Locomotive Co.'s office bldg., 17th and Hospital Sts.

BUILDING NEWS BUILDINGS PROPOSED

Association and Fraternal

Ala., Dadeville—Dadeville Lodge No. 71, A. F. & A. M., G. C. Murray, Sec., erect 2-story brick temple during Summer; 40x80 ft.

La., New Orleans—Young Men's Christian Assn., 2220 Dryades St., C. C. Dejoie, pres., colored branch, raising funds for new building.

Miss., Pascagoula—Pascagoula Lodge No. 45, I. O. O. F., repair and remodel Seaton Bldg. for post office and lodge rooms.

Miss., Leland—Ancient Free and Accepted Masons selected Claude H. Lindsley, Jackson Tower Bldg., Jackson, as architect for temple; brick, stone trim, 2 stories; theater and motion picture house on first floor.

Okla., Guymon—Ancient Free and Accepted Masons have permit for \$45,000 temple.

Okla., Tulsa—Knights of Pythias, Frank E. Duncan, Chmn., Bldg. Comm., Mayo Bldg., ready for bids about April 25 for \$100,000 orphans' home; stone, tile and reln. conc., 2 and 3 stories; Cross & Duggan, Archts., 114½ E. 22nd St. 2-27

Bank and Office

D. C., Washington—American Pharmaceutical Assn., Dr. H. A. B. Dunning, Chmn., Dr. E. F. Kelly, Sec., both 10 W. Chase St., Baltimore, Md.; John Russell Pope, 542 Fifth Ave., New York, architect for \$500,000 headquarters bldg.; advises project still in design stage; no definite information available at present; structure steel with limestone or marble, 1 story and ground story, 120x70 ft.; central section 70x70 ft. with 2 wings, oil heat. 2-6

Ga., Macon—Continental Trust Co. Bd. of Directors, Thos. K. Glenn, Chmn., plans to

start razing bldg. Cherry and Third Sts., May 1; will erect 8 to 10-story structure on site. 3-20

La., Gretna—Gretna Trust & Savings Bank, Copernicus Ave. and Second St., remodel bldg.; redecorate, change partitions; new cages, fixtures, wiring, plumbing, sheet metal work, roofing, tile and marble work, etc.; Jones, Roessle & Olshner, Archts., Maison Blanche Bldg., New Orleans; soon ready for bids.

Okla., Ada—Flett Bros. postponed erection of \$80,000 office bldg.; Albert S. Ross, Archt., Ada; Brown & Myers, Engrs., Petroleum Bldg., Oklahoma City. 4-3

Okla., Oklahoma City—Jas. S. Gladish, 524 E. Ninth St., will soon let contract for 6 additional stories to 5-story building, Third St. and Harvey Ave.; lower ground floor about 3 ft.; Tom Sorey, Archt., Perrine Bldg.

Tex., Corpus Christi — Central Power & Light Co., E. B. Neiswanger, Pres., Frost Natl. Bank Bldg., San Antonio, in Fall plans to start work on \$300,000 office bldg., Chaparral and Laguna Sts.; fireproof, 6 stories.

Tex., Dallas—J. W. Crowder Realty Co., 1711 Santa Fe Bldg., receiving bids to raze structure on site and excavate for proposed 31-story National Bldg., Commerce and Lane Sts.; \$2,000,000; site 163x100 ft.; basement for parking purposes; Whitson & Roberts, Archts., Santa Fe Bldg. 3-6

Tex., Harlingen—Joe M. Nix, 205 E. Travis St., San Antonio, considers erecting office building.

Churches

Ark., Tuckerman—Methodist Church, J. N. Hout, Chmn., Bldg. Comm., having plans drawn for \$30,000 bldg.; brick and stone, 1

story, tile or comp. roof, misc. iron and steel.

Ark., Wilmet—Methodist Episcopal Church, E. J. Newton, member, Bldg. Comm., erect \$15,000 bldg. after plans by Durward F. Kyle, Archt., National Bldg., Pine Bluff; 1 story, brick and stone. 8-15

La., New Orleans—Our Lady Star of Seat R. C. Church erect \$150,000 bldg., St. Roch St. near Roman St.; tile roof; Wogan & Bernard, Archts., Canal Bk. Bldg.

La., Tioga—Baptist Church, Rev. A. N. Murray, Pastor, plans building.

Md., Baltimore—Brown Memorial Presbyterian Church, Dr. Thos. Guthrie Speers, Pastor, 1316 Park Ave., remodel interior; church voted to raise \$150,000; hope to install new organ; Cram & Ferguson, Archts., 248 Boylston St., Boston, Mass.

Mo., Kansas City—Grace Presbyterian Church, Rev. Fred E. Brooks, Pastor, erect 2-story community wing to bldg.; rebuild Sunday school and add two 2-story wings; \$35,000 to \$40,000; Geo. M. Siemens, Archt., 1202 Scarritt Bldg.

Mo., St. Louis—St. James Evangelical Church erect brick, conc. and struct. steel community bldg., College and Blair Aves.; 1 story and basement, 62x140 ft.; T. P. Barnett Co., Archt., Arcade Bldg.; bids in.

Mo., St. Louis—Faith E. L. Church, Rev. Alfred L. Grewe, Pastor, 5041 Terry Ave., erect \$140,000 bldg.; Aegeter & Bailey, Archts., Ky. Exch. Bldg.

Mo., Webster Groves, St. Louis—Webster Groves Baptist Church, Rev. N. L. Reader, Pastor, about ready for bids for brick bldg., Oakwood and Summit Aves.; 2 stories and basement, about 42x82 ft.; Chas. L. Thurston, Archt., Gorelock Bldg., 111 W. Lockwood St. 11-28

Okla., Ada—Church of Christ, A. Floyd, Chmn., Bldg. Comm., probably soon call for bids for \$35,000 bldg.; financing; brick; 2 stories; Albert S. Ross, Archt. 9-12

Okla., Blanchard—Methodist Church having final plans drawn for \$10,000 bldg.; brick veneer, 2 stories, 30x35 ft.; Joe I. Davis, Archt., Oklahoma City.

Okla., Tulsa—University Methodist Church, Rev. Vache A. Hargis, Pastor, plans to start work latter part of Summer on \$200,000 Gothic type bldg., College Ave. and Fifth St.; rock walls, limestone face, L shape, steel frame, 2 stories and basement, 140x150 ft., slate or tile roof; nave, chapel and balcony seat 1100; 9 stained glass windows; Chas. A. Popkin, Archt., Commercial Bldg. 12-26

Okla., Tulsa—Congregational Church, Dr. John A. Rice, Pastor, plans bldg., 16th St. and Lewis Ave.

S. C., Belton—Second Baptist Church, J. B. Mitchell, member, Bldg. Comm., erect 12-room frame Sunday school annex; receiving bids.

S. C., Columbia—First Baptist Church, W. J. McGee, member, Bldg. Comm., 1803 Hampton Ave., erect \$30,000 Sunday school, site present structure; 3 stories, seat 1388; furnishings, equipment, etc., \$5000.

Tenn., Memphis—Bellevue Baptist Church, Rev. R. G. Lee, Pastor, 1668 Peach St., erect brick, rein. conc. and steel Sunday school and addition to church; 3 stories and 1 story Sunday school to accommodate 2500; 25 to 30 classrooms; Joe T. Wallace, Archt.; Ralph Dippel, Engr., both Bank of Commerce Bldg.

Tenn., Ennis—Tabernacle Baptist Church, Rev. W. E. Brittain, Pastor, plans auditorium and parsonage.

Tenn., Gonzales—First Primitive Baptist Church erect \$10,000 bldg.; face brick veneer, 1 story, 40x70 ft., wood floors, tile bath; Will N. Noonan Co., Archt., Builders Exch. Bldg., San Antonio.

Va., Richmond—Bethlehem Lutheran Church, H. Wm. Nolde, Chmn., Bldg. Comm., opens bids April 23 for bldg., Ryland and Grace Sts.; \$125,000, classroom on first floor, auditorium to seat 450 above; Wysong, Bengston & Jones, Archts., Professional Bldg., Charleston, W. Va. 2-6

Va., Williamsburg—Presbyterian Church erect Colonial bldg., Richmond Rd.

City and County

Ark., Forrest City—City, Jas. L. Scott, Mayor, receives bids until April 22 for brick city hall and fire station; 2 stories and basement, 44x120 ft., wood floors, comp. roof; auditorium seat 600; jail in basement; Estes W. Mann, Archt., Cotton Exch. Bldg., Memphis, Tenn. 2-6

Fla., Jacksonville—City Council requests City Comsn. to erect fire station in St. Johns Park or Lakewood Park.

La., Abbeville—Vermillion Parish Police Jury ready for bids about May 1 to remodel courthouse; fireproof; new plumbing, fixtures, elect. work and fans, painting, linoleum floors; Theo. L. Perrier, Archt., Maritime Bldg.

La., Monroe—City, P. A. Pong, Sec.-Treas., erect 4 brick bath houses and concession stand combined, Salt Water Natatorium; 1 story, 169x66 ft.; Clarence L. King, Archt., Bernhardt Bldg.; bids April 11.

La., New Orleans—City, A. S. Montz, City Archt., ready for bids within about 10 days for fire station, Alvar St. near Burgundy St.; face brick, cast stone trim, 2 stories, comp. roof. 1-23

La., New Orleans—Department of Public Finances, Pur. Div., Room 24, City Hall, receives bids until May 6 for wood and steel furniture and office equipment, etc., for criminal courts and parish prison bldg.; also bids until April 22 for lighting fixtures; plans from Dibold & Owens, Ltd., Archts., Canal Bk. Bldg. 2-6

La., New Roads—Pointe Coupee Parish Jury receives bids until April 22 for courthouse repairs; plans on file with C. E. Roy, Sec. Address H. P. Mounger, Pres., Lettsworth, La., or Lamartine Couanchaud, Sheriff, New Roads.

Miss., Mendenhall—Simpson County Bd. of Supvrs. receive bids until May 6 for repairs to jail; Hull & Malvaney, Archts., Jackson.

Miss., Vicksburg—Warren County defeated \$75,000 courthouse bonds. 3-20

Mo., St. Louis—Plaza Commission, Inc., (architect) advises plans for proposed \$5,000,000 municipal auditorium complete; await decision of municipal authorities before calling for bids; structure faced with Bedford stone, 322x493 ft., 162 ft. high to ridge line; main arena accommodate 12,000, 270 ft. wide, 90 ft. high; interior access to arena by 6 ramps; 23 exterior entrances; music hall to seat 3500. 6-6-29

Okla., Oklahoma City—Oklahoma County, J. W. Berry, Clk., erect kitchen, dining room, water tank and tower and heating plant additions to poor farm near Oklahoma City; \$20,000; Ralph James, Archt., 519½ W. Main St.; bids in.

Okla., Sayre—City, Oscar Speed, Mayor, defeated \$28,500 library bonds. 3-27

Okla., Stillwell—Adair County Bd. of Commrs. plan to call for bids about 60 days for \$100,000 courthouse; to call bond election; stone, 2 stories, 70x64 ft., cement floors, asphalt roof, brick work; F. A. Duggan, Archt., 114 E. Second St., Tulsa. 3-13

Tenn., Clinton—Anderson County Court, W. A. Brown, Judge, authorized expenditure of \$35,000 to repair jail.

Tenn., Knoxville—City, Geo. R. Dempster, City Mgr., has \$35,000 available toward erection of juvenile detention home; Knox County, S. O. Houston, Judge, plans to appropriate \$30,000 at July session toward erection. 2-27

Tenn., Tazewell—Claborn County Bd. of Commrs., J. W. Rose, Clk., may call election in Aug. on \$150,000 courthouse and jail bonds.

Tenn., New Braunfels—Comal County Bd. of Commrs., Carl Roepper, County Judge, have plans ready about May 1 to remodel courthouse and erect jail; \$80,000; face brick, hollow tile, rein. conc. and cast stone, 3 stories and basement, 87 x 29 ft., elevator, built-up roof; Jeremiah Schmidt, Archt. 3-20

W. Va., Wheeling—City, T. Y. Beckett, Mgr.-Mayor, plans central fire station; location not determined.

Dwellings

Ala., Birmingham—C. T. Thomason, 1725 Avenue G, erect \$20,000 residence, Howard College Estates; brick veneer, 2 stories, tile roof, steam heat; Robt. G. Chapman, Archt., Bankers Bond Bldg.; preliminary plans.

Ala., Northport—S. P. Faucett, Jr., erect brick veneer residence; 1 story, comp. roof, steam heat; Miller & Martin, Archts., Title Guar. Bldg., Birmingham.

Ark., Augusta—I. J. Stacy erect brick and stone residence; 2 stories and basement, 37x74 ft.; Wm. N. Parsons, Jr., Archt., 1661 Cornell Rd., N. E.

Ark.-Tex., Texarkana—Mrs. E. J. Irving, 417 Pine St., erect face brick veneer residence; 1 story, 6 rooms, pine, oak and tile floors, 2 baths, shingle roof; Ye Planry, Inc., Archt., 1713½ Live Oak St., Dallas, Tex.

Ark., Wilmet—E. J. Newton erect \$15,000 residence; Durward F. Kyle, Archt., National Bldg., Pine Bluff.

D. C., Washington—Waple & James, 1226 Kennedy St., N. W., has permit for \$15,000 residence, 1615 Kennedy Place, N. W.; 2 stories, brick.

D. C., Washington—Jas. LaFontaine, Center Market, has permit for \$11,000 residence, 3154 Bladensburg Rd., N. E.; brick, 2 stories.

D. C., Washington—W. Walter Vaughn, 12th and Upshur St., has permit for 2 brick and cinder block dwellings, 10-19-23 Varum St., N. E.; 2 stories; \$17,000.

D. C., Washington—Geo. I. Willis has permit for 2 dwellings, 3606 Kanawha St., N. W., and 3600 Morrison St.; brick, 2 stories; \$21,000; plans by L. E. Harris.

D. C., Washington—P. J. Grady, Investment Bldg., has permit for 2 frame dwellings, 2221-25 Randolph St., N. E.; 2 stories; \$10,000.

D. C., Washington—Wm. S. Phillips, 1501 K St., N. W., has permit for 2 brick detached dwellings, 3315-19 Fessenden St.; 2 stories; \$14,000; Louis Justement, Archt., 16 Jackson Place, N. W.

D. C., Washington—M. Landis, 2638 Rhode Island Ave., N. E., has permit for 2 frame and stucco dwellings, 3808-10 24th St., N. E.; 2 stories; \$10,000.

Fla., Fort Lauderdale—G. A. Peterson, Archt., drawing plans for several bldgs. to be erected during Summer at Las Olas Beach.

Fla., Fort Lauderdale—A. P. Hard, Aurora, Ill., erect residence, guest house, greenhouse, and garage and storage rooms, Las Olas Beach; residence 3 stories, 8 rooms, coral rock, creosoted shingle roof; garden; G. A. Peterson, Archt.

Fla., Fort Myers—A. S. Livingwood, Scottsdale, Pa., plans winter residence.

Fla., Lake Wales—Mrs. Wm. H. Nichols, Jr., erect rein. conc., stucco and hollow tile residence, Mountain Lake; 2 stories, tile and oak floors, cast stone or Quarry Key stone trim, tile roof; Marion Sims Wyeth, Archt., Wyeth Bldg., Palm Beach.

Fla., Leesburg—Main St. Baptist Church plans parsonage.

Fla., Miami Beach—Geo. W. Meade, Collins Ave., remodel and erect additions to residence; Frank Wyatt Woods, Archt., Ingraham Bldg., Miami; bids in.

Fla., Miami Beach—Mrs. Beach, 1120 Euclid Ave., considering architects' sketches for 2-story residence and garage, Meridian Ave. and 18th St.; probably build during Summer.

Fla., Miami—Chas. S. Boyd, care Appleton Coated Paper Co., Appleton, Wis., plans to start work in Summer or early Fall on \$40,000 residence, garage, servants' quarters, etc., S. Bayshore Drive near 21st Ave., Silver Bluff; preliminary plans; Walter C. DeGarmo & Thos. A. Bruno, Asso. Archts., 30 S. E. Sixth St., Miami.

Fla., Miami Beach—H. Wm. Pollack, Pres., W. Pollack Poster Print, Buffalo, N. Y., plans \$50,000 winter residence, 51st St. and N. Bay Rd.

Fla., Orlando—John Lubbe, Amherst Apts., W. Colonial Drive, erect hollow tile and stucco residence; 2 stories, 63x60 ft., tile and oak floors, tile roof, steam heat, 2 screened porches; P. C. Samwell, Archt., Winter Park; bids in.

Fla., Palm Beach—Jos. Widener, Philadelphia, Pa., probably let contract in about 2 weeks for \$250,000 Italian villa type residence, S. Ocean Blvd.; stucco, stone trim, 2 stories, 7 baths, 60x30-ft. swimming pool, terraced boat landing; Treanor & Fatio, Archts., Phipps Plaza; lake front constr. under way by Smith & Riddle, Engrs., Lake View Arcade, both Palm Beach. 3-13

Fla., Palm Beach—Harrison Williams, New York, alter Blythedunes, N. Ocean Blvd.; Treanor & Fatio, Archts., Phipps Plaza, Palm Beach.

Fla., Palm Beach—Thos. L. Chadbourne South Ocean Blvd., add patio to residence; Treanor & Fatio, Archts., Phipps Plaza.

Fla., Palm Beach—Mortimer Skiff, S. Ocean Blvd., erect additions to residence; Treanor & Fatio, Archts., Phipps Plaza.

Fla., Palm Beach—Emil J. Stahl, Villa Bellaria, alter residence; Treanor & Fatio, Archts., Phipps Plaza.

Fla., Passagrille—Thos. J. Rowe Corp. erect number dwellings; \$100,000. 3-20

Fla., St. Petersburg—G. R. Walker, 100 Broadway, New York, purchased 5 lots, Eagle Crest; plans dwellings.

Ga., Elberton—W. E. Fortson erect brick veneer residence; 1 story, hardwood floors, comp. roof; probably day labor.

Md., Baltimore—Philip S. Morgan, 514 St. Paul St., erect residence, Tunbridge Rd. near Charles St. Ave.; Cyril H. Hebrank, Archt., 3 E. Lexington St.

Md., Baltimore—Harry F. Page, 304 Ilesher Ave., plans residence, Thornhill Rd. near Tilbury Way, Homeland.

Md., Baltimore—Sylvan Homes Corp., 3100 Fair Ave., erect 3 frame dwellings, 1216-18 and 1300 Steelton Ave.; 2 stories; \$10,000; also let contract at \$4000 to Necker Bros., Carney, Md., for dwelling, 6100 Old Harford Rd., on which foundation is completed.

Md., Baltimore—Earl G. Taylor, 3125 Abell Ave., erect residence, St. Paul St. near 39th St.; Machen & Dixon, Archts., 312 N. Charles St.

Miss., Greenville—Dr. E. L. Phyfer plans residence, Starling St. near Eureka.

Mo., Clayton, St. Louis—Henry Koopman, care Johnson & Maack, Archts., 1123 Chemical Bldg., erect brick residence, Moorlands Park; 2 stories and basement, 31x42 ft.

Mo., Kansas City—E. W. Hess, care Rankin-Benedict Insurance Co., Davidson Bldg., purchased homesite, Tomahawk Rd., Indian Hills.

Mo., Kansas City—H. F. Freeman, care First National Bank, Baltimore and 10th St., purchased homesite, Oak St. near 66th St. Terrace, Armour Hills Gardens.

Mo., Kansas City—Loren S. Walte, care Wight & Wight, Archts., First Natl. Bank Bldg., purchased homesite, 70th St. near Valley Rd., Romanelli Gardens.

Mo., Kansas City—Home Investment Co., Commerce Bldg., erect 6 dwellings, 400-17 E. 72nd St.; \$3500 each.

Mo., St. Louis—Boyle O. Rodes, 4397 McPherson Ave., erect brick residence, Laude Rd.; 2 stories and basement, tile bath, hardwood floors, copper metalwork, probably slate roof and steam heat; Jamieson & Spearl, Archts., Arcade Bldg., drawing plans.

Mo., St. Louis—J. Mayer, 4608 Gravois St., erect 12 brick dwellings, 6500 block Hoffman St.; 1 story, 24x32 ft., comp. roofs, hot air heat; \$36,000.

Mo., St. Louis—A. P. Richardson, 5200 Nottingham St., erect 2 brick dwellings, 5026-44 Potomac St. and 1 at 5011 Fairview St.; 1 story, 27x44 ft., comp. roofs, hot air heat; \$15,000.

N. C., Salvo—Lewis E. Pierson, Chmn., Bd. of Directors of Irving Trust Co., New York, reported, purchased 250-acre tract, Pamlico Sound near Salvo; erect caretaker's lodge, boat houses, construct duck ponds; also plans clubhouse.

Okl., Heavener — Heber Denman erect stucco and hollow tile residence; 2 stories and basement, asbestos roof, steam heat; Chris Reichardt, Archt., First Natl. Bk. Bldg., Fort Smith, Ark.; bids April 15.

Okl., Tulsa—Arthur Doering, 1631 S. Florence Place, erect \$20,000 residence; brick veneer, 2 stories and basement, 38x32 ft.; Smith & Senter, Archts., Philtower Bldg.

Okl., Yukon—T. A. Kroull, care Yukon Mill & Grain Co., erect \$18,000 residence after plans by Schumacher & Winkler, Archts., Oklahoma City; brick veneer, 2 stories and basement, 46x32 ft. 3-27

S. C., Anderson—R. J. Ramer, North Ave., erect \$50,000 residence; brick and Crab Orchard rubble stone, Indiana limestone trim, hollow tile, struct. steel, stone tile basement, 2 stories and basement, 44x24 ft., interior marble and tile work, oak, tile, marble, Crab Orchard, U. S. Rubber comp. and slate flagstone floors, Ludowici Celodene tile roof, Kernerator, Crittall metal casement; Henry Irven Gaines, Archt., Public Service Bldg., Asheville; bids April 12.

S. C., Easley—Ford Williams erect \$10,000 residence; brick and hollow tile, 2 stories and basement, 38x34 ft., hardwood and tile floors, metal lath and grilles, steam heat; Haskell H. Martin, Archt., 21½ W. McBee Ave., Greenville; final plans.

Tenn., Lookout Mountain—L. Hardwick Caldwell receives bids about April 19 for face brick and native stone residence; \$100,000, Indiana limestone, hollow tile, 2 stories and basement, 104x46 ft. with 41x22 ft. garage and servants' quarters, interior marble, slate roof; Pringle & Smith, Archts., Norris Bldg., Atlanta, Ga.; Gordon Smith, Asst. Archt., Volunteer Life Bldg., Chattanooga, Tenn.; following contractors estimating: S. C. Pace & Sons, James Bldg.; Geo. A. Becking & Sons, James Bldg.; Home Builders Service Co., 827 Broad St.; Orr-Barnes Construction Co.; Selman-O'Brien Construction Co., 670 Georgia Ave., all Chattanooga. 3-6

Tenn., Memphis—Milton Risser, 1572 Overton Park Ave., erect brick veneer residence, University Place; 1 story, 36x50 ft., 2 tile baths, hardwood floors, comp. shingle roof, stone trim; Claude Northern, Archt., Fidelity Bk. Bldg.; plans complete.

Tenn., Nashville — O. F. Noel, Exchange Bldg., repair residence damaged by fire, 400 Deaderick St.; \$12,000.

Tex., Fort Worth—Dan Priest, 1708 Oshland St., erect \$16,000 residence, garage and servants' quarters, 601 Rivercrest Drive; brick veneer, 2 stories, 46x40 ft., tile baths, comp. roof; plans and constr. by Herbert G. Walker, 111½ W. Sixth St.

Tex., Houston—Houston Ready-Cut House Co., 3601 Polk St., erect \$12,000 brick veneer residence and garage, 2615 Riverside Drive; 10 rooms, 2 baths.

Tex., Houston—C. A. Nichols, 1704 Harold St., plans English type residence, Main Blvd. and Glenn Haven, Braeswood.

Tex., Luling—Luling Oil & Gas Co. erect residence and office for field supt.; frame, 1 story, 8 rooms; Wilder & Smith, Archts., Texas Theatre Bldg., San Antonio.

Tex., Mission—Dr. M. Smith erect residence; Gerald Decker, Archt.

Tex., Bandera—W. W. Kyle, Sr., let contract at \$16,020 to Ernest F. Kusener, 735 Rigby Ave., for rock, tile and rein. conc. residence; 1 story; Adams & Adams, Archts., Real Est. Bldg., both San Antonio.

Tex., San Benito—G. E. Lovett plans \$10,000 Colonial residence, North Shore Park; brick veneer, 2 stories, 34x38 ft.

Government and State

Ark., Mena — Arkansas National Guard, Brig.-Gen. E. L. Comper, Adj. Gen., Little Rock, erect \$25,000 armory after plans by Durward F. Kyle, Archt., National Bldg., Pine Bluff; brick and stone, 1 story. 4-18-29

D. C., Washington — District Commrs., Room 509, Dist. Bldg., receives bids April 23 for Engine House No. 31 and oil house, Everett St. near 36th St., N. W.; 212,304 cu. ft.

Fla., Jacksonville—Treasury Dept., Jas. A. Wetmore, Act. Supvg. Archt., Washington, D. C., opens bids May 12 for site for Federal Bldg.; approx. 315x210 ft.; \$2,000,000 available for uptown bldg.; also \$575,000 appropriated for post office bldg. at Terminal Station. 4-18-29

Kv., Harrodsburg—Treasury Dept., Jas. A. Wetmore, Act. Supvg. Archt., Washington, D. C., plans \$95,000 post office.

Miss., Winona—Treasury Dept., Jas. A. Wetmore, Act. Supvg. Archt., Washington, D. C., plans \$65,000 post office.

Mo., Centrailla—Treasury Dept., Jas. A. Wetmore, Act. Supvg. Archt., Washington, D. C., plans post office.

Mo., Jefferson City—Treasury Dept., Jas. A. Wetmore, Act. Supvg. Archt., plans post office.

Tex., Lubbock—Treasury Dept., Washington, D. C., erect bldg. to house post office, courts, Civil Service, Internal Revenue and Agricultural Extension Service; too early to determine when bids will be asked; fireproof, stone face, 3 stories and basement, 104x87 ft., red tile roof, elevator, heating plant in basement, tile floor and marble wainscot in public lobby, high wood wainscot, plaster beams and cornice and acoustically treated walls in courtroom. 3-13

Va., Norfolk—B. R. Jordan, Asst. Postmaster, opens bids April 21 for alterations to first floor of post office; plans from Mr. Jordan.

Va., Petersburg — Department of Justice, Washington, D. C., H. L. Merry, Supvg. Steward, establish temporary Federal penitentiary, Camp Lee, after plans by J. M. Shelton, care Robert & Co., Inc., Bona Allen Bldg., Atlanta, Ga.; \$100,000 initial appropriation available; steel knock-down type bldg.; administration bldg., 4 dormitories and bldg. to contain mess hall, kitchen and power plant; install sewerage and water systems. 4-10

Hospitals, Sanitariums, Etc.

Ark., North Little Rock, Little Rock—U. S. Veterans Bureau, Room 764, Arlington Bldg., Washington, D. C., receives bids in triplicate until May 13 for laundry, including paving and grading; work includes excavating, rein. conc. constr., hollow tile, brick, cast stone, iron work, steel sash, metal stall partitions, slate roof, metal lath, roof ventilators, insect screens, etc., also outside sewer, water, steam and elect. distribution systems; drawings from Constr. Div., Room 764.

La., Shreveport—El Karubah Temple, A. A. O. N. M. S., Jas. H. Rowland, Sec., selected Edw. F. Neill, City Natl. Bk. Bldg., as archt. for \$35,000 improvements to hospital for crippled children; new wards and machine shop; brick and stucco. 3-13

Mo., St. Louis—Board of Public Service, City Hall, opens bids April 29 for alterations and erection of new morgue at City Hospital No. 1; separate bids for refrigeration work, plumbing and drainage, and elect. work.

N. C., Sanford—Lee County voted \$62,500 hospital bonds; similar sum to be given by Duke Foundation. 2-13

Tex., Sanatorium—State Bd. of Control, Claude D. Teer, Chmn., Austin, has plans about ready for addition to children's hospital and dormitory, State Tuberculosis Sanatorium; conc., 2 stories; recreation room, living quarters, 6 instructors' rooms and baths; Phelps & DeWees, Archts., Gunter Bldg., San Antonio.

Hotels and Apartments

Ala., Mobile—Malbis Hotel Co., Jason Malbis, Pres., receives bids June 1 for 33-story, 76x136 ft., struc. steel, brick and tile, fireproof, 500-room hotel; \$2,000,000; equipment and furnishings, \$500,000; granite and limestone to fifth floor; built-up roof, conc. floors; Henry J. Apfelbach, Archt., 840 N. Michigan Ave.; Thos. Shaver, Engr., 35 N. Dearborn St., both Chicago; C. P. Tampany, 33 N. Kedzie Ave., Chicago, recently incorrectly reported as Gen. Contr. See Want Section—Building Material and Equipment. 4-10

Ark., Little Rock—Mrs. B. Levin, 515 Center St., erect 6-family apartment, 1915 Broadway; Erhart & Eichenbaum, Archts.

Fla., Miami Beach—Roy F. France, Archt., 1661 Alton Rd., soon let contract for 14-unit apartment, 15th St. between Pennsylvania and Euclid Aves.

Fla., Miami Beach—Wm. F. Whitman, 732 Federal St., Chicago, Ill., and 3201 Collins Ave., Miami Beach, erect 3-story, 24-unit, rein. conc., conc. block and stucco apartment, Collins Ave. between 33rd and 34th Sts.; \$165,000, tile and wood floors, tile and comp. roof; Phineas Palst & Harold D. Stewart, Archts., Roy F. France, Asso. Archt., all Art Centre Bldg., Coral Gables, and 1661 Alton Road, Miami Beach.

Fla., Pasadena, St. Petersburg — Walter Mendels, 122 Greenwich St., New York, ready for bids about July for 1-story, 125x70 ft. hollow tile and stucco addition to Hotel Roilat; \$40,000, cement and wood floors, tiled glass roof, contain swimming pool; Bernard Wells Close, Archt., Bisbee Bldg.; W. E. Dunbar, Engr., 119 E. Forsyth St., both Jacksonville. See Want Section—Building Material and Equipment. 4-10

Fla., Pass-a-Grille—W. P. Huppelcutt V.-P., J. B. Green Realty Co., Inc., Box 176, St. Petersburg, advises that while have plans have been drawn and competitive bids on construction work received on cooperative apartment building on Pass-a-Grille Island, project will probably be delayed for few months; plans by Hadley & Nordstrom, 336 Central Ave., St. Petersburg, call for 3 stories, 260x130 ft., hollow tile and stucco; tile and built-up roof. 1-9

Ga., Atlanta—Dinkler Hotels Co., Inc., Carling Dinkler, Pres., receives bids April 28 at office G. Lloyd Preacher & Co., Inc., Archts.-Engrs., Mortgage Guarantee Bldg., for \$2,500,000, 650-room Louis Dinkler Hotel; 19 stories and basement, 193x101 ft., struc. steel, rein. conc., brick, hollow tile, limestone trim, terrazzo, marble and maple floors; 8-story, 100x125 ft. garage in rear; Thompson, Holmes & Converse, Asso. Archts., 101 Park Ave., New York; following contractors estimating: Carr Construction Co., Candler Bldg.; Southern Ferro Concrete Co., 70 Ellis St., N. E.; National Construction Co., Glenn Bldg., all Atlanta; John M. Geary Co., Arcade Bldg., Asheville, N. C.; Dilks Construction Co., 51 E. 42nd St., New York, and 160 N. LaSalle St., Chicago; United Engineers & Constructors, Inc., 125 E. 46th St., New York. 4-10

Md., Baltimore—Carrollton Company incorporated with Herbert A. Wagner, Chmn., Bd. of Directors; Harry E. Karr, V.-P.; C. Wilbur Miller, V.-P.; James Carey Martien, Sec.-Treas., Baltimore Trust Bldg., Baltimore; propose to erect 23-story, 1100-room hotel and apartment house, Howard and Center St. and Park Ave.; \$8,000,000 including site, construction and equipment; 500 hotel rooms and 139 apartment suites; central tower 23 stories, center wings 17 stories and main building 12 stories, cover entire site of 60,000 sq. ft.; contain 7,000,000 cu. ft.; assembly room on Howard St. side to seat 2000 people, shops on ground floor on Center and Howard Sts.; 250-car garage; plan to

start work in 60 to 90 days, and complete about Sept. 1931; W. Gordon Beecher, Archt., 12 E. Pleasant St.

Okl., Oklahoma City—F. E. Cook soon start work on \$20,000 apartment on N. Robinson St.

Tex., Beeville—Kohler Hotel Co., A. V. Schvab, advises proposed annex have not yet decided fully to build; Dielmann & Levy, Archts., State Natl. Bk. Bldg., Corpus Christi. 4-10

Tex., Dallas—Miss Claire Nelson erect \$15,000, brick veneer, 32-room apartment, 2900-02 N. Fitzhugh St.

Tex., Point Isabel—Industrial Holding Corp., acting for Point Isabel Beach Properties, Inc., Herman J. New, Brownsville, sponsoring erection of 400-room hotel, bath houses, swimming pools, casino, restaurant, dance hall, probably 200-room apartment hotel and seawall on beach side of Padre Island in connection with \$1,000,000 causeway project from Point Isabel to Padre Island; V. L. Conrad, Engr., Brownsville. 2-6

W. Va., Huntington—Gail T. Harlan has permit for \$12,500, 3-story, brick apartment, 1134 Ninth Ave.

W. Va., Webster Springs—John M. Hoover and associates announced that proposed \$200,000 hotel project will materialize this summer; E. C. Holmboe, Archt., Empire Bldg., Clarksburg. 10-24

Miscellaneous

Ark., Batesville—Crouch Mortuary having plans prepared by Hubert T. McGee, Fidelity Bk. Bldg., Memphis, Tenn., for 2-story, 100x46 ft., stucco building; comp. or tile roof, hardwood floors, Spanish type.

Ark., Fort Smith—Fentress Mortuary, Oscar Fentress, 23 N. Eighth St., plans to start work in fall on \$50,000, 2-story brick and stone building, N. 18th and A Sts.; Haralson & Nelson, Archts., Merchants Natl. Bk. Bldg. 5-30-29

Fla., Crystal River—Sylvanus Club, H. P. Anderson, Sec.-Treas., plans to start work in 60 days on \$100,000 clubhouse and hotel.

Fla., Miami Beach—W. E. Brown Engineering Co., Bastian Bldg., Miami Beach, Engrs. for Beach Polo Club, E. C. Romfh, Treas., First Natl. Bank, Miami, let contract to Moody, Anderson & Milling Co., Hollywood, for dredge and pump work in connection with development 125-acre tract between Sunny Isles and Golden Beach for \$2,000,000 sports center; plans call for clubhouse, cabanas, tennis courts, several polo fields. 3-27

Fla., Miami Beach—Sea Club Inc., Charles W. Hills, 53 W. Jackson Blvd., Chicago; Mark R. Hanna, 1048 Yorkshire St., Detroit, Mich.; Oscar S. Thompson, 1240 Castle Ave., Miami Beach; having preliminary plans prepared by Frank Wyatt Woods, Ingraham Bldg., Miami, for 2-story clubhouse, dance patio, dining hall, 100-ft. swimming pool, covered loggia and dining veranda, etc., at 87th St. and Collins Ave.; plan to start work in June or July.

Md., Pikesville, Baltimore—Woodholme Country Club, Harry Fink, House Chmn., Southern Hotel, Baltimore, having preliminary plans prepared by Lucius R. White, Court Square Bldg., Baltimore, for \$750,000 clubhouse, Woodholme Ave.

Mo., Normandy—North Hills Country Club, care Aegerter & Bailey, Archts., Ry. Exchange Bldg., St. Louis, soon let contract for \$25,000, 2-story, 25x136 ft., brick clubhouse addition.

Mo., Mount Vernon—Missouri State Assembly, Rev. W. A. Fite, Pastor, First Baptist Church, Neosho, Pres., erect girls' dormitory on Baptist Hill.

Tex., Houston—Bd. of Trustees, Pauline Stern Wolf Memorial Home has plans by Joseph Finger, Democratic Bldg., and will soon let contract for administration cottage, cottage for widows and one for children; \$100,000 2 stories, brick. 12-12

Tex., Lufkin—Angelina County Fair Assn., O. C. LaGrone, purchased 18-acre site and plans erecting permanent buildings.

Tex., McAllen—Kriedler Undertaking Co., M. L. Kriedler, advises will not erect mortuary building at present. 3-27

Schools

Ala., Dadeville—Bd. of Education, A. V. Meigs, Supt., erect brick, 8-room elementary school; steam heat; auditorium to seat 600.

Ark., Cecil—Consolidated School Dist. No. 10 erect \$12,000, 1-story, brick veneer school; Chas. G. Andrews, Sec., Franklin

County Bd. of Education, Charleston; plans by Archt. for State Bd. of Education, Little Rock.

Ark., El Dorado—Union County Bd. of Education, J. L. Bond, Supt., erect \$15,000, 1-story, brick veneer, 8-classroom school in Union and Wesley Chapel Consolidated School Dist.

Ark., Hardy—Sharp County Bd. of Education, T. J. McJunkin, Supt., erect 1-story, brick veneer, 6-classroom school in Poughkeepsie Consolidated School Dist. to replace burned structure.

D. C., Washington—Following contractors estimating on \$500,000, 3-story, brick Elliot Junior High School, bids April 22: North-Eastern Construction Co., 6 W. Madison St., Baltimore; Boyle Robertson, Inc., Evans Bldg.; George E. Wyne, W. E. Mooney and Arthur L. Smith, all 2139 Pennsylvania Ave., N. W.; DeSibour Construction Co., 1200 Fifteenth St., N. W.; Skinker & Garrett, 1416 F St., N. W.; C. H. Tompkins Co., 1608 K St., N. W.; all Washington; Fleisher Engineering & Construction Co., 410 N. Michigan Ave., Chicago, Ill.; W. P. Rose Co., Wayne Natl. Bank Bldg., Goldsboro, N. C.; Wm. MacDonald Construction Co., Syndicate Trust Bldg., St. Louis, Mo.; A. L. Harris, Municipal Archt., District Bldg. 4-3

Fla., Highland City—Polk County Bd. of Public Instruction, T. T. Hatton, Supt., Bartow, receives bids May 7 on \$25,000, 1-story, 167x38 ft., brick and frame grammar school; auditorium 40x70 ft., wood floors, asbestos roof; Arch D. Holsinger, Archt., Bartow. 4-10

Fla., Westville—Holmes County Bd. of Public Instruction, Bonifay, soon let contract for \$30,000 school on Westville-Darlington Highway.

Fla., Winter Park—Rollins College, Dr. Hamilton Holt, Pres., having plans prepared by Kiehn & Elliott, Seybold Bldg., Miami, for 2 dormitories; \$85,000. 4-3

Ga., Cartersville—Bd. of Education having plans prepared by Lockwood & Poundstone, Marietta Bldg., Atlanta, for grammar school and remodeling high school; brick, comp. roof; \$100,000 bonds voted; Edw. F. Billie, Asso. Archt., Marietta Bldg., Atlanta. 4-3

Ga., Hamilton—Following contractors estimating on \$40,000, 10-classroom and auditorium, 1-story and basement, brick school, date opening bids to be announced later; Williams Construction Co., Red Rock Bldg.; W. P. Francis, 201 Luckie St., N. W.; J. F. Higdon, 309 Edgewood Ave., S. E., all Atlanta; Murphy Pound; J. P. Bradfield, Glade Rd.; J. C. McCraney, all Columbus; Snellings Lumber Co., Phenix City, Ala.; LaGrange Lumber & Supply Co.; Daniel Lumber Co.; Newman Lumber Co., all LaGrange; Daniell & Beutell, Archts., Ga. Sav. Bk. Bldg., Atlanta. 4-10

Ga., West Point—Bd. of Education soon let contract for \$65,000, 1-story and basement, brick school; comp. roof, tile, cement and hardwood floors, hot air or steam heat, Dennis & Dennis, Archts., 556 Mulberry St., Macon. 3-6

La., Baton Rouge—Favrot & Livaudais, Archts., Hibernia Bk. Bldg., New Orleans, receive bids May 8 for following buildings at State School for Blind: Two-story school to include administration offices and auditorium, consists of two wings, 56x88 ft.; 1-story, 29x43 ft. laundry building; 1-story, 65x26 ft. boys' shop; 1-story, 55x40 ft. hospital building; brick, comp. roofs, wood floors, steam heat.

La., Logansport—DeSoto Parish School Bd., F. O. Brinkley, Pres., Mansfield, receives bids May 7 for \$30,000, 2-story, brick addition to Logansport High School; plans from Edw. F. Neild, Archt., City Bk. Bldg., Shreveport.

La., Mt. Hermon—Washington Parish School Bd., Franklinton, erect \$20,000 consolidated high school at Mt. Hermon. 2-29

La., Pineville—Louisiana College, Dr. C. Cottingham, Pres., plans to start work Jan. 1, 1931 on \$50,000 dining hall, first of 3 brick buildings to cost \$250,000; other 2 buildings will be brick dormitory for men and one for women to be constructed within 3-yr. period. 4-10

La., Scotland—Southern University, Wm. T. Hall, Chmn., Bldg. Comm., receives bids May 8 at office Favrot & Livaudais, Archts., Hibernia Bk. Bldg., New Orleans, for 1-story, 139x72 ft., rein. conc. and brick school; 6 classrooms, comp. roof. 4-10

La., Shreveport—Rotary Club, J. G. Palmer, Chmn., Bldg. Comm., soon ready for bids for \$100,000 dormitory for Centenary College; Clarence W. King, Archt., Giddens-Lane Bldg. 12-19

La., Shreveport—Caddo Parish School erect \$70,000, 2-story, brick, 8-classroom and auditorium addition to Barrett School; Edw. F. Neild, Archt., City Bk. Bldg.

Md., Baltimore—John Russell Pope, 542 Fifth Ave., New York, Archt., for \$250,000, 3-story, brick Law Bldg. at Johns Hopkins University advises that plans are in sketch stage; marble base, brick walls, fireproof; house Research Library of 100,000 volumes, and have provision for approx. 70 resident students including dormitory accommodations; scheduled for this summer's construction. 5-13

Miss., Decatur—Newton County Agricultural and Junior College, M. J. Scarborough, receives bids April 25 for 1-story gymnasium and 2-story science and commerce buildings; brick, \$90,000; plans from P. J. Krouse, Archt., M. & W. Bldg., Meridian. 4-10

Mo., Clayton, St. Louis—School Bd., John L. Bracken, Supt., erect 12-classroom school, opposite high school at 7500 Maryland Ave.; also erect cafeteria to serve high school.

Mo., Joplin—Bd. of Education, Roy Breazeale, Sec., having plans prepared by Felt, Dunham & Kreihn, Balcony Bldg., Kansas City, for \$60,000, 2-story auditorium and gymnasium addition at South Jr. High School and \$60,000, 1-story addition to West Central Grade School; soon select architects for \$200,000, 2- and 3-story North Jr. High School, \$90,000, 2-story Emerson Grade School and \$22,000, 1-story gymnasium and auditorium addition to East Jr. High School; all buildings brick. 3-20

Mo., Moberly—Bd. of Education, B. F. Self, Sec., rejected bids on Junior College and Senior High School; probably have new plans drawn; Ludwig Abt, Archt., 114½ N. Williams St. 2-27

Mo., Mountain View—Bd. of Education erect high school addition; \$10,000 bonds voted.

Mo., Normandy—Normandy Consolidated School Dist. Trustees erect 4-classroom addition to Bel-Nor Public School; Wm. B. Ittner, Inc., Archt., Bd. of Education Bldg., St. Louis.

Mo., St. Louis—Bd. of Education, A. A. Blumeyer, Pres., has following low bids on Hadley Vocational School, Grand Blvd. and Bell St.; Gen. Contr.—\$1,074,563, John Hill Construction Co., Syndicate Trust Bldg.; plumbing, sewerage and gas fitting, \$103,000, J. A. McBride Mechanical Equipment Co., 2639 Locust St.; automatic sprinkler system, \$49,521, Thos. J. Sheehan, 2233 Olive St.; heating and ventilating, \$166,931, Sodemann Heat & Power Co., 2306 Morgan St.; vacuum cleaning system, \$5577, Richler Heating Co., Railway Exchange Bldg.; electric, \$193,490, S. C. Sachs, Inc., 1422 Olive St.; electric elevators, \$58,914, Westinghouse Electric Elevator Co., 411 N. Seventh St.; plans call for 5 stories, brick, rein. conc. and steel, laboratory bldg. 230x160 ft., shop bldg. 275x188 ft.; also has following bids for West Belle School on Enright Ave.; Gen. Contr.—\$255,000, Dunham Construction Co., Chemical Bldg.; plumbing, sewerage and gas fitting, \$18,650, J. Sheehan Plumbing Co.; heating and ventilating, \$38,831, Sodemann Heat & Power Co.; vacuum cleaning system, \$2210, Elliott & Barry Engineering Co., 4060 W. Pine St.; electric, \$16,150, E. A. Koene-man Electric Co., 1420 Pine St.; 3 stories, brick; Wm. B. Ittner, Inc., Consaltg. Archt.; Geo. W. Sanger, Act. Commr. of School Bldgs., both Bd. of Education Bldg. 3-20

Mo., University City, St. Louis—Bd. of Education, Alfred Fairbanks, 6701 Delmar Blvd., erect 2½-story and basement, 180x80 ft., brick and rein. conc., fireproof, 8-classroom school, Hanley Road and Carleton Ave.; Wm. B. Ittner, Inc., Archt., Bd. of Education Bldg., St. Louis; bids in. 3-20

Mo., Wentzville—St. Charles County School Bd., B. H. Jolly, Supt., St. Charles, plans high school, grade school and negro school at Wentzville and addition to school at Fris-tell.

N. C., Enka—Buncombe County Bd. of Education, Albert Teague, Chmn., Asheville, erect \$30,000 grammar school in Enka School Dist. instead of high school as recently reported; plans high school later. 3-6

N. C., Madison—Madison School Dist. voted \$90,000 bonds for high school. -27

N. C., New Bern—Bd. of Education plans 5-room addition to Griffin School and 8-room school for negroes; \$28,000.

N. C., Statesville—Iredell County Bd. of Education postponed erection of schools at Celeste, Henkel, Scotts, Monticello and Sharon. 2-20

N. C., Tuxedo—Bd. of Education erect school to replace recently burned structure.

Okla., Norman—Bd. of Education, W. L. Gibbs, Pres., ready for bids about May 25 for following schools: Ward School, \$40,000; Home Economics Bldg., \$14,000; locker and dressing rooms addition to high school, \$10,000; enlarging and remodeling manual training building at high school, \$2500; replacing Jefferson Grade School, \$1200; new equipment, \$14,900; Layton, Hicks & Forsythe, Archts., Braniff Bldg., Oklahoma City. 3-27

Okla., Tulsa—Mingo School Dist. No. 13, near Tulsa, A. C. Smith, Pres., Bd. of Education, soon ready for bids for \$25,000, 2-story, brick and tile school; A. J. Love, Archt., Atco Bldg.

Tenn., Bloomington Springs—Junior Military Academy, Maj. Roy E. DeBerry, Prin., rebuild recently burned structure; \$20,000.

Tenn., Bristol—Sullivan County School Bd., Blountville, erect \$100,000 high school at Bristol and \$35,000 high school in Horse Creek section; \$350,000 high school bonds approved.

Tenn., Chattanooga—Hamilton County Bd. of Education, Jas. A. Cash, erect \$100,000, 2-story and basement, 120x125 ft., rein. conc., struc. steel, brick and tile Glenwood School; stone trim, comp. roof; Clarence Jones, Archt., James Bldg.; bids in. 3-27

Tenn., Johnson City—State Bd. of Education, Nashville, selected Coile & Cardwell, Johnson City, to prepare plans for \$150,000 fireproof library and \$25,000 heating plant addition and R. H. Hunt Co., Chattanooga, as architect for \$75,000 addition to dormitory at State Teachers College.

Tex., Bryan—Bd. of Education plans school improvements; election in May on approx. \$100,000 bonds. 4-3

Tex., Dalhart—Dalhart Ind. School Dist. votes May 3 on \$80,000 bonds for 12-room, auditorium and gymnasium East Ward School; H. A. Finch, Supt. of Schools; J. Roy Smith, Archt., Blackburn Bldg., Amarillo. 4-10

Tex., Mason—Mason Ind. School Dist., O. A. Huff, Pres., ready for bids about May 1 for \$18,000, 4-classroom, basement and auditorium grade school addition; Will N. Noonan Co., Archt., Builders Exchange Bldg., San Antonio.

Tex., McAllen—McAllen Ind. School Dist., M. E. Stone, erect 2-classroom, brick, conc. and struc. steel Wilson School addition; Alexander H. Woolridge, Archt., State Bk. Bldg.; bids in.

Tenn., McKenzie—Bd. of Education plans rebuilding grammar school recently burned; \$15,000, 3 stories.

Tenn., Memphis—Bd. of Education, G. W. Gardner, Sec., has low bid at \$13,864 from Memphis Construction Co., 160 Union St., for 1-story, 45x90 ft., brick and conc. fireproof, Leroy Pope School addition; H. J. Kramer, Archt., 1756 Vinton Ave. 3-6

Tex., Alpine—Sul Ross State Teachers' College ready for bids about June 1 for heating plant and tunnels; \$23,500 available; Trost & Trost, Archts., Two Republics Bldg., El Paso.

Tex., Amarillo—School Bd. has plans by J. Roy Smith, Blackburn Bldg., for \$165,000 junior high school. 1-23

Tex., San Antonio—Bd. of Education, J. A. McIntosh, Pres., erect 1-story, 4-classroom, assembly hall and cafeteria addition and remodel Robert S. Green School No. 28; J. Clyde & Percy W. Williams, Archts., Moore Bldg.; W. E. Simpson Co., Engr., Milam Bldg.; bids in.

Tex., San Benito—San Benito Ind. School Dist. voted \$320,000 bonds for \$175,000 high school, \$70,000 combination gymnasium, cafeteria-vocational training building, remodeling present high school for junior high, erecting Mexican Ward School; Phelps & Dewees, Archts., Gunter Bldg., San Antonio. 3-13

Tex., Stockdale—School Bd., C. H. Woods, Pres., has low bid at \$33,285 from C. C. Dishman, 305 Mary St., for 1-story, 10-classroom and auditorium school; Olin Boese, Archt., Builders Exchange Bldg.; W. E. Simpson Co., Engr., Milam Bldg.; Lloyd D. Royer, Mech. Engr., Smith-Young Tower, all San Antonio. 4-3

Tex., Winters—Bd. of Education remodel school and build gymnasium; \$30,000 bonds voted.

Va., University—University of Virginia, Dr. Edwin A. Alderman, Pres., has gift of \$300,000 from Rev. Frederic Wm. Scott, Richmond, Rector of University, for stadium.

Stores

Md., Baltimore—Peoples Service Drug Stores, Inc., Dr. F. C. Carr, Mgr., in charge of construction work, 77 P St., N. E., Washington, D. C., leased 25x75 ft. store, 501 S. Broadway, and rebuild.

Mo., Washington—Nieburg & Vitt erect 2-story store on Elm St.

N. C., Charlotte—E. C. Griffith & Co., Johnston Bldg., erect \$10,000, 2-story, brick store and apartment, 1107-09 Wilkinson Blvd.

Okla., Guymon—J. R. Paine erect 2-story brick building.

Tenn., Memphis—Marx & Bendsdorf, 42 S. Second St., has low bid from Home Builders Corp., Dermon Bldg., for 2 stores, Poplar Ave. and Belvedere St.; 1 story, brick, comp. roof, conc. and wood floors; Raymond B. Spencer, Archt., Dermon Bldg.

Tex., Alpine—Judge J. C. Fuller, Marfa, having plans prepared by Roy K. Hamberlin, Builders Exchange Bldg., San Antonio, for \$50,000, 2-story and basement, rein. conc., steel frame, struc. tile, brick, marble, stone trim store and office building; rein. conc. floors.

Tex., Beaumont—R. E. Smith, San Jacinto Life Bldg., plans commercial building, 2498 Broadway.

BUILDING CONTRACTS AWARDED

Association and Fraternal

Ark., Malvern—Benton Lodge No. 34, A. F. & A. M., H. W. Finkbeiner, member, Bldg. Comm., let contract to Chas. Searcy, Benton, for \$25,000 to \$30,000 temple; brick and buff stone, 2 stories, about 60x100 ft., comp. roof; Petter & McAninch, Inc., Archts., Pyramid Life Bldg., Little Rock. 4-3

Bank and Office

Ga., Atlanta—Draper-Owens Co., Grant Bldg., Jesse Draper, member, announced plans for erection by syndicate of \$1,000,000 bldg., Peachtree, Crawford and Long Sts., for physicians and dentists; present plans call for 10-story structure, 100x100 ft., about 100 offices; Southern Ferro Concrete Co., 70 Ellis St., N. E., interested in proposition, to be builder.

La., Many—Peoples State Bank remodel bldg.; new marble fixtures, white tile flooring, fire- and burglarproof vault, 10,000-lb. vault door; contract let.

Mo., Kansas City—Kansas City Power & Light Co. let contract at about \$100,000 to Long Construction Co., 600 Rialto Bldg., to excavate and construct foundation, basement and sub-basement for 30-story office bldg., 14th St. and Baltimore Ave.; 40-ft. caissons; sub-basement 42 ft. below Baltimore St. level; 131x100 ft., 501 ft. high, 41-ft. penthouse surmounted by 87-ft. orna. tower above 30th floor; \$2,500,000; Holt, Price & Barnes, Archts., Telephone Bldg.; H. F. Freshman, company archt.; O. R. Bettis, company engr., both 1830 Grand Ave. 3-6

Tex., Seguin—Seguin Bank & Trust Co. let contract to Albert Nolte, Seguin, to remodel and enlarge bldg.; Paul G. Silber & Co., Archts., Bedell Bldg., San Antonio. See Want Section—Building Material and Equipment. 4-3

Churches

Ark., Waldron—Baptist Church, Rev. Mack McCray, Pastor, erect 1-story frame tabernacle by day labor; brick foundation, comp. roof, wood floors.

Ga., Atlanta—Stephenson Co., 143 Spring St., N. W., has heating and plumbing contract for \$275,000 Ponce de Leon Baptist Church; elec. work, Courson & Hitt; millwork, Randall Bros., 665 Marietta St., N. W., all Atlanta; limestone, Ingalls Stone Co., Bedford, Ind.; Geo. Harwell Bond, Archt., Candler Bldg.; Robt. G. Lose, Engr., Forsyth Bldg.; Southern Ferro Concrete Co., Contr., 70 Ellis St., N. E., all Atlanta. 2-6

Theatres

Ark., Forrester—John H. Forrester, Jr., Waldron, plans theatre.

Ga., Rockmart—Bert Robertson has low bid from Roy Reese for 1-story and basement, 24x114 ft. struc. steel, stucco, hollow tile and brick theatre; comp. roof; Jas. T. Mitchell, Archt., 140 Peachtree St., N. E., Atlanta. 4-3

Ky., Ashland—A. S. Graven, Inc., Archt., 100 N. LaSalle St., Chicago, advises that plans will be completed in about 7 weeks for theatre and store building for Hibernia Securities Co., Inc., interests Hibernia Bk. Bldg., New Orleans, La. 4-10

Mo., West Plains—Catron Estate having plans prepared by Boller Brothers, 114 W. Tenth St., Kansas City, for \$50,000 theater on W. Main St., to be leased to Dean W. Davis.

Va., Covington—Eubanks & Caldwell, Inc., Boxley Bldg., Roanoke, have contract to rebuild stores occupied by Bee Hive Store and Great Atlantic & Pacific Tea Co.

W. Va., Morgantown—Warner Brothers, Alfred Goettesman, Expansion Mgr., 321 W. 44th St., New York, plan theatres at Morgantown and Parkersburg.

W. Va., Parkersburg—See W. Va., Morgantown.

Warehouses

N. C., Smithfield—People's Warehouse Co., N. L. Perkins and L. G. Patterson, Smithfield, and J. D. Perkins, Sr., Roxboro, erect tobacco warehouse, Bridge and Fifth Sts.; 40,000 sq. ft. floor space.

Miss., Lexington—Methodist Church let contract at \$22,228 to W. R. Ellis, Clarksdale, for Sunday school; brick veneer, 2 stories, 23 classrooms; Edwin B. Phillips, Archt., Fidelity Bk. Bldg., Memphis, Tenn.

Miss., Madison—Methodist Episcopal Church let contract at \$10,500 to Currie & Corley, Raleigh, for brick bldg.; 1 story and basement, 32x60 ft., wood floors, rein. conc. foundation, asbestos shingle roof, sheet metal work; J. M. Spain, Archt., Merchants Bk. & Tr. Co. Bldg., Jackson.

Miss., Natchez—St. Marys Cathedral expanding \$100,000 to repair bldg., Main and Union Sts.; Address Wm. Steltenroth, Archt. See Want Section—Building Material and Equipment. 4-3

S. C., Clover—Clover A. R. P. Church let contract to W. T. Beauregard, for \$12,250 Sunday school; brick veneer, 2 stories, 76x35 ft., wood floors, comp. roof; Hugh L. White, Archt., Gastonia; brick work started.

Tenn., Memphis—St. Teresa R. C. Church has permit for \$37,000 church and \$19,000 school, Jackson Ave.; brick, conc. and steel, 2 stories; J. F. Schingle, Contr.

Tenn., Morristown—First Presbyterian Church let contract to Robt. Toney for \$20,000 Sunday school addition.

City and County

Fla., Tampa—City, D. B. McKay, Mayor, let contract at \$11,950 to Kendrick & McGucken for pavilion, DeSoto Park; brick, cast stone trim, 1 story and part basement, steel truss roof, conc. foundation; Couch & Parslow, Archts., 1008 Florida Ave.; also has low bid at \$10,440 from Wm. I. Sultenfuss for auditorium, Robles Park; Mann & Jessen, Archts., 112 Cass St. 3-20

La., New Iberia—Iberia Parish Police Jury let contract to X. F. Herpeche for courthouse repairs. 2-27

Tenn., Knoxville—City let contract at \$11,143 to H. E. Rogers, 977 Lee Ave., for North Knoxville fire station; Ryno & Brackney, Archts., Brownlow Bldg. 4-3

Tex., Jacksonville—City let contract to C. W. Marshall for \$100,000 brick, stone and cement city hall; contain fire station and auditorium. 2-13

Dwellings

Ala., Montgomery—John T. Clark erect \$17,000 to \$20,000 residence, Thomas St., Cloverdale; brick, 2 stories; Algernon Blair, Contr., First Natl. Bank Bldg.

Ala., Montgomery—J. G. Syfrett, 15 S. Perry St., erect \$10,000 residence, Magnolia Curve; brick, 1 story, comp. roof; owner builds.

Ala., Troy—Alex. Henderson erect \$12,000 brick veneer residence; 1 story, tile roof, steam heat; Jacob E. Sallie, Archt., Empire Bldg.; day labor.

D. C., Washington—Waple & James, Inc., 1226 Fourteenth St., N. W., erecting 11 brick row dwellings, 236-56 Madison St., N. W.; 2 stories, 18x43 ft., hardwood floors, tile and slate roofs; \$75,000; furnishings, equipment, etc., \$5000; Geo. T. Santmyers, Archt., 1426 I St., N. W.; owners build.

D. C., Washington—D. J. Dunigan, Inc., Tower Bldg., has permit for 12 brick dwellings, 410-12 Longfellow St.; 2 stories; \$72,000; owner builds.

D. C., Washington—L. E. Breuninger & Sons, Inc., Investment Bldg., have permit for 10,000 dwelling, 7605 Fourteenth St., N. W.; 2 stories and attic, brick; owners build.

D. C., Washington—Wenger Bros., Inc., 1627 I St., N. W., erect 2 brick dwellings, 3841-45 Cathedral Ave., N. W., after plans by Geo. T. Santmyers, Archt., 1416 I St., N. W.; 2 stories, \$24,000. 4-10

D. C., Washington—Frank Murphy, House Office Bldg., has permit for \$25,000 stone residence, 1734 Poplar Lane, Rock Creek Park Estates; 2 stories and attic; John W. Kearney, Archt., 1417 K St., N. W.; Randolph Jennings, Contr., 726 14th St., N. W.

D. C., Washington—Alfred T. Newbold, 5626 Connecticut Ave., N. W., has permit for 2 dwellings, 3931-33 Lexington St., N. W.; stone and stucco, 2½ stories; \$20,000; owner builds.

D. C., Washington—W. C. & A. N. Miller, 1119 17th St., N. W., have permit for \$18,000 dwelling, 4763 Indian Lane, N. W.; stone, 3 stories; also erect \$12,000 dwelling, 4422 Garfield St., N. W.; G. E. MacNeill, Archt., 1119 17th St., N. W.; owners build. 4-10

Fla., Coral Gables, Miami—Carl Green, 809 Valencia Ave., started work on \$30,000 dwelling, garage and servants' quarters, Alhambra Circle; rein. conc., conc. block and stucco, tile and comp. roof, steel sash, tile and wood floors; A. DeHaven Zink, Archt., Seybold Bldg., Miami.

Fla., Lake Jem—John Whitney erect \$25,000 residence by day labor; frame, 1 story, 112x30 ft., comp. roof; Alan J. McDonough, Archt., Ward Ave. and A. C. L. R., Eustis.

Fla., Lantana—Harold S. Vanderbilt started work on \$250,000 residence, South Ocean Blvd.; Italian villa type, stucco, Quarry Key stone trim, 288 ft. long, about 80 ft. wide, 2 stories, with two 1-story wings, central patio, cloistered swimming pool; Treanor & Fatio, Archts., Phipps Plaza; Watt & Sinclair, Inc., Contrs., Murray Bldg., both Palm Beach; no sub-contracts let.

Fla., Miami—Jas. Sottile, care Crow-Dodd Co., N. E. First St., remodel and erect additions to residence, N. W. Ninth St.; additions 1 and 2 stories; Wade & Oemler, Archts., Exchange Bldg.; constr. by Blacayne Associates, Inc., care Mr. Sottile.

Fla., Miami Beach—Blue Ridge Properties, Inc., 321 N. W. First St., Miami, erect \$15,000 dwelling, garage and servants' quarters, W. 34th St. and Chase Ave.; rein. conc., conc. block and stucco, 2 stories, 38x48 ft., tile, oak and pine floors, Old Cuban tile and comp. roof; Geo. N. Fowler, Archt.-Contr., 345 S. W. 20th Rd., Miami.

Fla., Miami Beach—Mrs. P. R. Gray, Belle Isle, erect additions to residence; servants' quarters, covered walkway, stairs, etc.; \$12,000; W. C. DeGarmo & Thos. A. Bruno, Asso. Archts., 39 S. E. Sixth St., St. John Construction Co., Contr., 529 N. W. Seventh St.; both Miami.

Fla., Miami Beach—A. W. Grovenger, 1769 Lenox Ave., started work on \$10,000 residence, 1836 Jefferson Ave.; rein. conc., conc. block and stucco, 1 story, 34 x 52 ft., tile and comp. roof; owner builds.

Fla., Miami Beach—Fredk. H. Johnston, care L. M. Barrett, Archt., 1108 Lincoln Rd., erect \$9,000 to \$10,000 bungalow and garage, Michigan Ave. near 17th St.; rein. conc., conc. block and stucco, 1 story; Tropical Homes, Inc., Contr., 1108 Lincoln.

Fla., Miami Beach—E. S. Bradfield, Barnesville, O., erect \$3,000 residence, garage and servants' quarters, Meridian Ave. and 19th St.; rein. conc., conc. block and stucco, 2 stories; L. M. Barrett, Archt.; Tropical Homes, Inc., Contr., both 1108 Lincoln Rd., Miami Beach.

Fla., Miami Beach—Mark C. Honeywell, Wabash, Ind., let contract at \$32,000 to John B. Orr, Inc., 147 N. E. Sixth St., Miami, for garage and guest house unit of \$250,000 to \$300,000 estate, 4567 Pinetree Drive; conc. frame, tile walls, 1 story, wood and tile floors, tile roof; foundation in; following sub-contracts let: elect. work, E. A. Robinson, 118 N. W. First Ave.; millwork, A. H. Ramsey & Sons, 71 N. W. 11th Terrace; roofing, McCrea-Miller Co., 632 S. W. Eighth St.; overhead garage doors, Brinson Building Material Co., Security Bldg., all Miami; tile work, Stewart-Mellon Marble Co., Miami Beach; plumbing by Contr.; August Geiger, Archt.; Harvey Baxter, Engr., both 58 S. E. Seventh St., Miami. 12-26

Fla., St. Petersburg—C. B. Allen, 944 39th Ave., N., owner Allendale Terrace, started work on \$20,000 dwelling; North Carolina silica rock and hollow tile, 57x80 ft., tile roof, 11 rooms, 4 baths; 2 other dwellings under constr.; also considers erecting 7-room dwelling.

Ga., Atlanta—E. J. Wood, Alphretta, erect \$10,000 residence, 730 Morningside Drive, N. E.; brick, 1 story, comp. roof; owner builds.

Ga., Atlanta—M. Mack Evans, 566 Langhorn St., S. W., erect \$12,500 dwelling, 22 Woodcrest Ave.; brick veneer, 2 stories, 47x33 ft., 2 baths, steam heat; day labor.

Ga., Atlanta—Chas. Black, Jr., Atlanta Tr. Co. Bldg., erect number dwellings, Tuxedo and Valley Rds. section; brick, 2 stories, slate and tile roof, about \$30,000 each; owner builds.

Ga., Atlanta—Rufus Purcell, 784 Virginia Ave., N. E., erect \$15,000 residence, Virginia Ave., N. E., near Ponce de Leon Place; brick veneer, 2 stories, hardwood and tile floors, comp. roof, conc. footings; owner builds.

Ga., Atlanta—Wm. H. Kiser, Paces Ferry Rd., let contract to Collins, Holdbrook & Collins, Atlanta Tr. Bldg., for \$70,000 residence; face brick, struct. steel, Indiana limestone, 2 stories and attic, oak floors, slate roof; Hents, Adler & Shutz, Archts., Candler Bldg. See Want Section—Building Material and Equipment. 2-13

Ga., Newnan—Garland M. Jones let contract for \$50,000 brick residence to Yost Construction Co., Candler Bldg., Atlanta; 1 story, basement and attic, 104x40 ft., 57x42-ft. garage, conc. and stone tile foundation, hollow tile, Indiana limestone trim, native stone, Fenestra steel sash, Kernerator, shingle tile roof; R. Kennon Perry, Archt., Mortgage Guar. Bldg., Atlanta. 2-27

Ga., Rome—J. B. Sullivan erect addition to residence; brick, 2 stories, 2 baths; Lockwood & Poundstone, Archts.; Edw. F. Billie, Asso. Archt., both 101 Marietta Bldg., Atlanta; day labor.

La., Alexandria—Harry L. Simon, 416 Elliott St., let contract at \$16,987 to R. J. Jones, Pineville, for residence; brick, stone trim, 1½ stories, oak floors, tile baths, tile roof, built-in features; Herman J. Duncan, Archt., 120 Murray St. 3-27

La., Baton Rouge—L. H. Petue let contract to H. O. & H. Pyland, 934 St. Louis St., for \$30,000 residence, Delphine Place; brick veneer, 1 story and basement; Lewis A. Grosz, Archt., New Raymond Bldg. 2-13

La., Monroe—W. J. Sherrouse, 126 Jackson St., let contract for \$25,000 residence, DeSiard Rd., to W. T. Simpson, 402 Filhol Ave., West Monroe; French type, brick and stone veneer, stucco and timber work, steel sash, slate roof, 3 baths, hardwood floors and trim; Clarence W. King, Archt., Giddens-Lane Bldg., Shreveport; Geo. C. Love, Asso. Archt., Bernhardt Bldg., Monroe.

La., New Orleans—Geo. Williams alter residence, 1723 Bienville St.; Walker Construction Co., Inc., Contr., 2232 Cadiz St.

La., New Orleans—Mayer Ratiman, Contr., 1524 Baronne St., erect duplex, 1601-07 S. Salcedo St.

La., New Orleans—Philip Schneller, Contr., 4141 Orleans St., erect dwelling, Congress St. near N. Galvez St.

Md., Baltimore—Cyril H. Hebrank, Archt., Central Sav. Bk. Bldg., erect \$15,000 residence, 323 Tunbridge Rd., Homeland; brick, 2 stories; Sheppard Bros., Contrs., Windsor Mills Rd., Woodlawn. See Want Section—Building Material and Equipment.

Md., Baltimore—Donohue Home Building Co., Ashland and Kenwood Ave., erect 38 brick dwellings, 1-75 Monastery Ave.; 2 stories; \$76,000; owner builds.

Md., Baltimore—Richwood Development Co., Everton Road, erect 2 frame dwellings

and garages, 5600-02 Everhurst Rd.; 1 story, 42 x 50 ft., slag roofs, hot water heat; \$10,000; H. J. Jean, Archt.; owner builds.

Md., Baltimore—E. J. Gallagher Realty Co., 3501 Ednor Road, erect 26 brick dwellings, 3700 block Elkador Rd.; 2 stories; \$104,000; owner builds.

Md., Baltimore—Jas. Keely, Bldr., 3529 Edmondson Ave., erect 22 brick dwellings, 900 block Woodington Ave.; 2 stories; \$63,000; owner builds.

Md., Baltimore—John J. Hurst, 413 St. Paul Place, erect 3 frame dwellings and garages, 2721-25 Kildaire Drive; 1½ stories, 26x30 ft. and 10x18 ft., hot water heat; \$10,000; J. K. Vickers, Archt.; owner builds.

Md., Baltimore—Joe O. Blair, 330 St. Paul St., erect \$10,000 residence and garage, 2803½ Copley Rd.; stucco, 2 stories, 30x38 ft., slag roofs, hot water heat; plans and constr. by owner.

Md., Baltimore—Glover P. Fallon, 6 Elmhurst Rd., erect \$10,000 whitewashed brick residence, 207 Witherspoon Rd.; 2½ stories, 37.6 x 26 ft. and wing, double oak floors, stone foundation, slate roof; Palmer & Lambdin, Archts., 513 N. Charles St.; L. L. Chambers, Inc., Contr., 36th St. and Roland Ave.

Md., Royal Oak—R. B. Marshal, Union Bk. Bldg., Pittsburgh, Pa., let contract to Herbert T. Seymour, Trappe, Md., for \$100,000 residence, Irish Creek; brick, 2 stories; R. M. Marlier, Archt., Empire Bldg., Pittsburgh. 4-10

Miss., Laurel—T. J. McCallum, Sixth Ave., let contract to Louis A. Gilley, N. Fifth Ave., for \$40,000 brick veneer and hollow tile residence; 2 stories and basement, 42x72 ft.; Emile Weil, Inc., Archt., Whitney Bldg., New Orleans, La. 3-13

Mo., St. Louis—Moellenhoff Building & Realty Co., 5407 S. Grand Ave., erect 3 brick dwellings, 5738-42 Lisette St.; 1 story, 24x40 ft., comp. roofs, furnace heat; \$12,000; J. Myers, Archt.; owner builds.

Mo., St. Louis—C. Calcaterra, care Angelo Berra, Contr., 2337 Cooper St., erect 10,000\$ brick residence, 5320 Elizabeth St.; 1 story and basement, hardwood floors, tile bath, hot air heat, comp. shingle roof.

Mo., St. Louis—R. A. & G. B. Bullock, Fullerton Bldg., erect 2 brick dwellings, 7616 Carrswold and 401 Edgewood Sts.; 2 stories and basement, 36x25 ft., hardwood floors, tile baths, slate roofs, hot water heat; Nolte & Nauman, Archts., 3882 W. Pine Blvd.; owners build.

Mo., St. Louis—Angelo B. M. Corrubia, Archt., Arcade Bldg., will let sub-contracts for 2 dwellings, Ladue Rd. near Ballas Rd., and 1 on Roland Blvd. and Country Club Drive; brick, 2 stories and basement, 24x23 ft., 90x74 ft. and 62x45 ft.

Mo., St. Louis—August C. Friehe, 320 Victor St., erect \$10,000 brick residence, 6623 Leona Ave.; 2 stories and basement, 34x37 ft., tile bath, hardwood floors, comp. shingle roof, hot air or hot water heat; O. J. Popp, Archt., Arcade Bldg., Barth Building & Realty Co., Contr., 4149 Gravois St.

Mo., St. Louis—O. K. Investment Co. erect 4 brick dwellings, 8762-74 Oriole St.; 1 story, 30x42 ft., comp. roofs, hot air heat; \$16,000; O. Kubatzky, Archt., both 2407 N. Broadway; owner builds.

Mo., St. Louis—Roy O. Finch, 7264 Stanford Ave., erect \$12,000 residence, 7339 Cornell Ave.; brick, 2 stories and basement, 37x30 ft., hardwood floors, tile bath, tile roof, steam heat; work by sub-contract.

Mo., St. Louis—Wm. Hoffman, care Henry Beetz & Son, Constr., 2668 Nebraska Ave., erect \$10,000 residence, Sappington Rd., Mauros sub-division; brick, 1½ stories and basement, 43x30 ft., hardwood floors, tile bath, hot air or hot water heat.

Mo., St. Louis—T. L. Johnson, Archt., 6925 Columbia Ave., superintending erection of brick residence, South and Hampton Drives, Hampton Park; 2 stories and basement, 52x39 ft.

Mo., St. Louis—H. Rolles, 4040 Itaska St., erect \$10,000 brick duplex, 1 story and basement, 29x49 ft., hardwood floors, tile bath, asphalt shingle roof, hot air heat; work by sub-contract.

Mo., St. Louis—Henry A. Wagner, 112 N. Bemiston St., erect \$11,000 residence, 416 Oakley Ave.; brick, 2 stories and basement, 28x30 ft., hardwood floors, tile bath, slate roof, hot water heat; work by sub-contract.

Mo., St. Louis—Edw. L. Wyland, 2410 Marion Ave., erect \$12,000 residence, 7539 Maryland Ave., brick, 2 stories and basement, 30x38 ft., tile bath, hardwood floors, comp. roof, hot water heat; work by sub-contract.

Mo., St. Louis—Advance Realty & Building Co., 7217 Princeton Ave., erect \$15,000 residence, 7307 Cornell Ave.; brick, 2 stories and basement, 38x31 ft., tile bath, with Vitrolite wainscot, hardwood floors, tile roof, hot water heat; work by sub-contract.

Mo., University City, St. Louis—T. J. Devine, 1320 Big Bend Blvd., erect \$12,000 brick residence, 7024 Dover Court; 1½ stories and basement, 26x50 ft., tile bath, hardwood floors, comp. shingle roof, hot air heat; Southwest Building Co., Contr., 7524 Suffolk St., Richmond Heights.

N. C., Carthage—Arthur S. Gilman, Cleveland, O., erect \$25,000 winter residence bet. Carthage and Pinehurst; log constr.; Haywood Fry, Engr.; Ed. C. Fry, in charge of constr., both Carthage.

N. C., High Point—E. W. Freeze, 300 Lindsay St., let contract to R. K. Stewart & Son, 154 S. Main St., for Georgian type residence; brick and hollow tile, 2 stories and basement, bar joist, comp. roof, ball and billiard rooms, etc.; Eccles D. Everhart, Archt.

N. C., Rocky Mount—R. D. Gorham, Franklinton Apt., let contract to D. J. Rose & Son, Tarboro St., Rocky Mount, for \$875,000 residence; limestone on hollow tile, conc. and hollow tile floor constr., 2 stories, about 81x68 ft., marble, oak, teak, slate and tile floors, clay tile roof, conc. foundation; Geo. R. Berryman, Archt., 102 W. Hargett St., Raleigh; work started. See Want Section—Building Material and Equipment.

Okla., Bartlesville—J. S. Dewar, care Phillips Petroleum Co., erect residence, Cherokee Hills addition; Frank McCollum, Contr.

Okla., Oklahoma City—Frits Heirding let contract to Louis Kasteens, 2244 W. 11th St., for \$15,000 residence and garage; brick veneer, 1 story and basement, 40x52 ft.; W. F. Laws & Co., Archts., First Natl. Bk. Bldg.

Okla., Oklahoma City—Keene C. Burwell, 415 W. 21st St., erect \$35,000 residence and garage; brick veneer; A. L. Christenberry, Archt., 1811 E. 25th St.; G. A. Nichols, Inc., Contr., 115 N. Harvey St.; work started.

Okla., Tulsa—H. F. Wilcox, 310 W. Sixth St., let contract to Harold Mattern, Commercial Bldg., for stone, brick, stucco and half-timber residence; 2 stories and basement, 37x106 ft.; John D. Forsyth, Archt., Exchange Natl. Bank Bldg.

S. C., Beaufort—Harry Payne Bingham, 39 Broadway, New York, purchased 1800 acres on Pootaligo River for estate; started work on residence; preparing duck ponds on 400 acres.

Tenn., Nashville—C. B. Kelly & Co., 305 Church St., erect \$10,000 dwelling, Mockingbird Rd.; brick veneer, 1 story, tile floors and wainscot in 2 baths, oak and pine floors, comp. roof, steam heat; owner builds.

Tenn., Nashville—John F. Thompson, Blackstone Apts., erect \$10,000 residence, 1709 Sixteenth Ave., South; brick veneer, 2 stories and basement, pine and oak floors, comp. roof, 2 tile baths; owner builds.

Tex., Fort Worth—Dr. M. J. Bisco, Medical Arts Bldg., erect \$30,000 dwelling, Park Hill Addition; brick veneer, 2 stories and basement, 37x62 ft., 3 tile baths, slate roof, furnace heat, metal casement windows; Stewart Moore, Archt., Flatiron Bldg.; owner builds.

Tex., Houston—T. E. Kennerly, Petroleum Bldg., erect \$10,000 residence and garage, 1812 South Blvd.; brick veneer, 2 stories, 7 rooms; A. McElroy, Contr.

Government and State

Ala., Bay Minette—H. Doehring & Son have contract for 30-ft. addition to post office; new fixtures.

D. C., Washington—Heckinger Co., Sixth and C Sts., N. W., has permit for \$20,000 bldg., 5921-Georgia Ave., N. W., for post office and store; stone and brick, 2 stories; 107 x 65 ft., non-fireproof, wood floors, slag roof, conc. foundation; Louis T. Rouleau, Archt., Investment Bldg.; owner builds. See Want Section—Building Material and Equipment.

Fla., Lakeland—Treasury Dept., Jas. A. Wetmore, Act. Supv., Archt., Washington, D. C., let contract at \$48,880 to Jones Bros. & Co., Box 338, Wilson, N. C., for remodeling and extension to post office.

Fla., Raiford—Board of Commrs. of State Institutions, Doyle C. Carlton, Gov., Tallahassee, erect cell house, State Prison; rein. conc., 42 cells; C. S. Hammatt, Engr., 213 E. 11th St., Jacksonville; work by sub-contract and day labor; receiving bids on cells and equipment.

Md., Baltimore—Otis Elevator Co., 810 18th St. N. W., Washington, has contract at \$178,451 for elevators for \$2,950,000 post office; N. P. Severin Co., Contr., 222 W. Adams St., Chicago, Ill.

S. C., Fort Bragg—Constructing Quartermaster let contract at \$145,700 to V. L. Nicholson Co., 611 S. Central Ave., Knoxville, Tenn., for 1 field artillery regimental barracks and utilities; rein. conc., brick, hollow tile, limestone trim, 3 stories and basement, steel sash, steel truss, steel toilet partitions, steel treads, metal door frames, steel locker, built-up and tile roof.

Tex., Fort Sam Houston, San Antonio—Constructing Quartermaster, Capt. Will R. White, let contract at \$29,879 to L. T. Wright & Co., Bldrs. Exch. Bldg., San Antonio, for signal communication center bldg.; brick, struct. clay tile, stucco and rein. conc., 2 stories and basement, 50x30 ft., cement, mastic and linoleum floors.

Tex., Randolph Field, Schertz—Constructing Quartermaster, Capt. A. W. Parker, let contract at \$1,328,801 to Kenneth L. Colborn, Inc., Pasadena, Calif., for 42 company officers' quarters and 130 sets (65 duplex bldgs. of non-commissioned officers' quarters, Randolph Field; former 1 story, 56x53 ft.; latter 2 stories, 57x37 ft.; both masonry, stucco, Mission type, tile roofs.

Hospitals, Sanitariums, Etc.

Fla., Tampa—Centro Espanol Sanitarium let contract to W. P. Richardson, 21st Ave. and 13th St., to remodel and add 1 story to bldg.; 20x38 ft., \$38,000; Couch & Parslow, Archts., 1006 Florida Ave.

N. C., Statesville—Davis Hospital enlarge hospital; fireproof, brick, steel and conc., additions 82x28 ft. and 42x30 ft., 3 and 4 stories, enlarge automatic heating system; about 12,000 sq. ft. additional floor space, accommodate 50 patients; U. A. Ostwald in chg. of construction.

Hotels and Apartments

Miss., Indianola—M. T. Reed Construction Co., Contr., Belzoni, started work on remodeling and erection of 20-room annex to Craig Hotel, W. P. Craig, Mgr.

Miss., Jackson—Following mechanical contracts awarded on \$900,000, 12-story Robert E. Lee Hotel for The Gammill Co., Stewart Gammill, Pres., Sibley Ave.; Heating and plumbing, Eldorado Plumbing & Heating Co., Eldorado, Ark.; wiring, Thompson Electric Co., 63 S. Third St., Memphis, Tenn.; Claude H. Lindsley, Archt., Jackson Tower Bldg.; Jackson; Gardner & Howe, Engrs., Porter Bldg., Memphis; bids in on superstructure.

Miss., Vicksburg—Ernest Thomas, E. Clay St., let contract to W. C. Smartt, Bazinsky Rd., for \$40,000 apartment on Cherry St.

Mo., Jefferson City—Gus Trippensee, 1301 E. High St., started work on 3-story and basement, 28x58 ft., brick apartment, 318 E. McCarthy St.; owner, Archt.-Bldr.

Mo., St. Joseph—Bd. of Education, A. L. Baker, Jr., 7209 Dartmouth Ave., started work on \$15,000, 2-story and basement, 68x44 ft., brick, 4-apartment, 7201 Tulane Ave.; slate roof, hardwood floors, hot water heat; owner, Archt.-Bldr.

Mo., St. Louis—F. H. Stricker, 4478 Kingshighway, N. E., erect \$10,000, 2-story, 34x44 ft., brick tenement, 5245-47 St. Louis St.; tar and gravel roof, hot air heat; H. A. Magee, Archt.-Bldr., 4418 Marcus St.

Okla., Oklahoma City—C. M. Marshall, S. W. Natl. Bank Bldg., started work on \$20,000, 2-story apartment on East Drive.

Tenn., Memphis—Noland Fontaine, 80 East Parkway, N., soon start work on \$15,000, 2-story, 38x60 ft., brick veneer apartment, Linden Ave. and Willett St.; J. L. White, Jr., Archt., 683 East Parkway, S.; R. L. Seig, Archt., First Natl. Bk. Bldg.

Tex., Austin—Mrs. Sophie Domschke let contract to Weise Brothers, 2600 Red River St., for \$12,815 apartment, 903 W. Sixth St.

Tex., Brownwood—Graham & Collins, 306 W. Commerce St., San Antonio, have contract at \$26,000 for electrical work in \$400,000, 12-story hotel for Brownwood Hotel Co., Inc.; J. O. Everett Co., Gen. Contr., 1713½ Live Oak St., Dallas; W. W. C. Hedrick, Inc., Archt., First Natl. Bk. Bldg., Fort Worth.

Tex., Texarkana—Fred Doyle let contract to John McGraw for \$20,000, 43x92 ft., brick apartment and store, 6th and Hazel Sts.; comp. roof; 8 frame garages with servants' quarters above.

W. Va., White Sulphur Springs—White Sulphur Springs, Inc., let contract to The John W. Cowper Co., Inc., State Planters Bk. Bldg., Richmond, Va., for 350-room conc., stucco and tile addition and improvements to Greenbrier Hotel; \$1,500,000; Philip L. Small, Inc., Archt., Terminal Tower Bldg., Cleveland, Ohio; R. H. Patterson, Consult. Engr.

Miscellaneous

Okla., Tulsa—International Petroleum Exposition and Congress, Wm. G. Skelly, Pres., Skelly Bldg., let contracts as follows in \$100,000 expansion program: Patterson Steel Co., 801 N. Xanthus St., for marketers' and refiners' building; Finnerl Concrete Co., for foundations; Knowles-Green Co., 419 E. Fifth St., plumbing; contract for several thousand ft. of conc. sidewalks not awarded; H. W. Parker will supervise construction.

Schools

Ala., Bessemer—Bd. of Education, J. E. Bryan, Supt., let contract at \$28,450 to Harrison Richardson, Brown-Marx Bldg., Birmingham, for 2-story and basement, 91x43 ft., brick high school addition; built-up roof, steam heat; D. O. Whilden, Archt., 517 N. 21st St., Birmingham.

Ala., Piedmont—Bd. of Education, Dexter L. Hevator, Supt., let contract to H. Y. Dempsey for \$50,000, 1-story and basement, 229x150 ft., brick, 10-classroom and auditorium school; asbestos roof.

Fla., Gainesville—Athletic Assn., Inc., Prof. Dean Slagle, University of Florida, let contract at \$118,215 to Winston & Penney for rein. conc. stadium; seat 21,000 people; Osborne Engineering Co., Engrs., 7016 Euclid Ave., Cleveland, Ohio; Rudolph Weaver, Archt., Peabody Hall, University of Florida.

Fla., Haines City—Florida Military Institute, Capt. W. Eugene, Commandant, let contract to Davenport Lumber & Supply Co., Davenport, for 8 buildings and remodeling Groves Hotel; \$55,000.

Ga., Columbus—School Bd., R. B. Daniel, Sec., let contract to Williams Lumber Co., 13th St., for 2-story and basement, 161x82 ft., brick, rein. conc., struc. steel and hollow tile negro industrial school, 8th St. and 12th Ave.; Smith & Biggers, Archts., Murrah Bldg.

Ky., Burgin—Mercer County Bd. of Education, Harrodsburg, let contract at \$27,000 to P. N. Wilson, Harrodsburg, for gymnasium, auditorium and several classroom addition to Burgin Graded and High School.

Ky., Murray—Murray State Teachers' College, Dr. Rainey T. Wells, Pres., let contract at \$200,763 to Raymond Construction Co., Bowling Green, for library and at \$91,000 to Hill & Sons, Fulton, for men's dormitory; heating and plumbing at \$31,700 to R. H. Vandeveld & Co., Murray; G. Tandy Smith, Archt., Guthrie Bldg., Paducah.

La., Bogalusa—School Bd. let contract to Cowgill & LeBlanc for 2-story brick and frame W. H. Sullivan Memorial Manual Training School unit to high school; Rathbone DeBuys, Archt., Hibernia Bk. Bldg., New Orleans.

La., Farmerville—Union Parish School Bd. let contract at \$40,665 to C. E. Andrews, Ruston, for 1-story, rein. conc. and brick auditorium-gymnasium addition to high school; built-up comp. roof, auditorium to seat 250 people; J. W. Smith & Associates, Archts., Ouachita Natl. Bk. Bldg., Monroe.

La., Goodhope—St. Charles Parish School Bd., Hahnville, let contract at \$13,373 to E. A. Rossi, 2825 Orchid St., New Orleans, for 1-story and basement, 40x70 ft., frame and stucco, 4-classroom school; tile and comp. roof; Wm. R. Burk, Archt., Balter Bldg., New Orleans.

La., New Orleans—Following sub-contracts awarded on 4-story 325 x 275-ft., rein. conc., brick and stone trim Alcee Fortier High School for which R. P. Farnsworth & Co., Maritime Bldg., have contract at \$595,559: Cast stone, Loeb Stone Co., 860 S. Bellevue St., Memphis, Tenn.; Clifford F. Favrot Supply Co., Agents, Maison Blanche Bldg.; cut stone, New Orleans Cut Stone Co., 2321 Callope St.; electric, Bunn Electrical Engineering Co., Inc., 742 St. Charles St.; plastering, Monahan Plastering Co., Canal Bank Bldg.; plumbing and heating, American Plumbing & Heating Co., Inc., 829 Baronne St.; roofing, W. M. Bennett Roofing Co., 417 S. Galvez St.; Face Brick, J. R. Quaid, 808 Perdido St., and Acme Brick Co., Whitney Bk. Bldg.; hardware, Stauffer-Eshleman Co., Ltd., 511 Canal St.; millwork, National Sash & Door Co., Inc., 600 N. Quipre St.;

rein. steel, Connors Steel Co., Empire Bldg., Birmingham Ala.; struc. steel and orna. iron, J. R. Sutton, 4724 Banks St.; rubber floors, U. S. Rubber Co., Inc., 202 Fulton St.; truscon steel windows, Woodward-Wight & Co., Ltd., 451 Howard Ave.; E. A. Christy, Supvg. Archt. for School Bd. 3-27

La., Zwolle — Sabine Parish School Bd., Many, let contract at \$49,448 to Tudor & Ratcliff, Commercial Bank Bldg., Alexandria, for 2-story, rein. conc., brick, stone trim, 12-classroom school; comp. roof; J. W. Smith & Associates, Archts., Ouachita Natl. Bank Bldg., Monroe. 3-6

Md., Baltimore—Bd. of Awards, City Hall, let contract at \$879,700 to J. Henry Miller, Inc., Eutaw and Franklin Sts., for 3-story annex with separate 1-story auditorium and alterations to present buildings of Baltimore Polytechnic Institute; steel, conc. and brick; work to be completed by Feb. 1, 1931; Chas. M. Anderson, Archt., 9 E. Pleasant St. 4-10

Md., Baltimore — St. Mary's Seminary, Farther J. F. Fenlon, Roland and Belvedere Aves., let contract to M. A. Long Co., 10 W. Chase St., for \$200,000, 4-story, basement extension to north wing of main building; limestone; contain dormitories and classrooms; Maginnis & Walsh, Archts., Statler Bldg., Boston, Mass. 12-5

Mo., Neosho — Bd. of Education, A. J. Bishop, Pres., let contract at \$39,492 to Lewis Hammer for 2-story, brick Central Grade School; Felt, Dunham & Kreihn, Archts., Balcony Bldg., Kansas City. 4-3

Mo., Sikeston—School Bd. let contract to Sam R. Smith, 3 S. Pacific St., Cape Girardeau, for \$12,000, 3-story high school addition.

Mo., St. Joseph—Bd. of Education, A. L. Loving, Sec., let contract at \$130,232 to P. P. Bundy Construction Co., 401 N. Main St., for 2-story and basement, 104x178 ft., rein. conc., brick and stone Webster Grade School; heating and plumbing, \$23,360, Turner & Cook, 7th and Edmund Sts.; electrical, \$2652, Harry C. Korns Electric Co., 1714 Frederick St.; Eugene B. Meir, Archt., Bartlett Bldg.; Wm. B. Ittner, Inc., Asso. Archt., Bd. of Education Bldg., St. Louis. 3-6

Mo., St. Joseph—Bd. of Education, A. L. Loving, Sec., let contract at \$134,141 to A. F. George, 1021 N. Third St., for 2-story and basement, 121x191 ft., brick and rein. conc., fireproof Jackson-Garfield School; heating and plumbing, \$27,387, Turner & Cook, 7th and Edmund Sts.; electric, \$3467, H.C. Korns, 1714 Frederick St.; Walter Boschen, Archt., Tootle-Lacey Bldg.; Wm. B. Ittner, Inc., Asso. Archt., Bd. of Education Bldg., St. Louis. 3-6

Mo., St. Louis—J. Sheehan Plumbing Co., 1609 Olive St., has contract for plumbing and Dennison-Loepker Electric Co., Synd. Trust Bldg., contract for electric work for \$400,000, 11-story and basement, 95x72 ft., brick and rein. conc., fireproof Radiology Institute at Washington University for which Dixie Construction Co., Louderman Bldg., has general contract; Jamieson & Spearl, Archts., Arcade Bldg. 4-10

Mo., St. Louis — Bethlehem Evangelical Lutheran Church, Rev. Jos. Frenze, 2144 Salsbury St., let contract to Wm. Hemminghaus, 1417 Destrehan St., for \$150,000, 3-story and basement, 158x70 ft., brick, rein. conc., fireproof school; 8 classrooms, auditorium, gymnasium, 6 bowling alleys; comp. roof, steam heat; plumbing, A. G. Maass Plumbing Co., 2824 Cherokee St.; heating, D. F. Edwards Heating Co., 2340 Pine St.; electric, Guarantee Electric Co., 1407 Olive St.; Albert Meyer, Archt., Central Natl. Bk. Bldg. 1-9

N. C., Stanfield—Stanley Co. Bd. Education, J. P. Sifford, Supt., Albemarle, let contract to D. C. Holbrook & Co., Albemarle, for \$30,000, rein. conc. and brick, 10-classroom Consolidated High School addition; Willard G. Rogers, Archt., Wilder Bldg., Charlotte, Thos. H. Yoe, Box 5, Mgr. office at Salisbury. 3-20

Okla., Guthrie—Bd. of Education, F. W. McVicer, Clk., let contract at \$56,366 to Billings & Pulse for 2-story and basement, brick and rein. conc., 12-classroom school; Roy W. Shaw, Archt., Enid. 3-27

S. C., Greenville—Bd. of Education, J. L. Mann, Supt., let contract at \$26,000 to M. S. Kremer Construction Co. for 1-story, brick, 8-classroom and auditorium school on Anderson St.; Beachman & LeGrand, Archts., Peoples Natl. Bk. Bldg. 1-30

Tenn., Chattanooga—Bd. of Education let contract at \$126,030 to Home Builders' Service Co., 827 Broad St., for 3-story and basement, 175x100 ft., rein. conc., brick and tile Brainerd Jr. High School; stone trim, comp. roof; R. H. Hunt Co., Archt., James Bldg. 4-10

Tenn., Chattanooga—Hamilton County Bd. of Education let at \$64,460 to Rogers & Leventhal for gymnasium and manual training department at Central High School; \$75,000; R. H. Hunt Co., Archt., James Bldg.

Tenn., Johnson City—Bd. of Education let contract at \$74,926 to Emory Construction Co., 602 Empire Bldg., Knoxville, for Martha Wilder School unit; 2 stories, 175x90 ft., brick, maple floors; Cole & Cardwell, Archts., Johnson City. 4-10

Tenn., Memphis—Bd. of Education, W. J. Prescott, Pres., let contract at \$242,308 to S. & W. Construction Co., Shrine Bldg., for Southeast Jr. High School; 3 stories, rein. conc., brick and tile stone trim, auditorium to seat 800 people; E. L. Harrison, Archt., Fidelity Bldg.; plumbing, \$15,650, Pritchard Bros., 433 Madison St.; heating, \$42,300, Fisher Heating Co., 367 Adams St.; electric, \$14,945, Fowler Electric Co.; let contract at \$39,400 to Meers & Wallace, 63 S. Third St., for 2-story, brick and stone, 18-classroom addition to Florida St. School; Anker F. Hansen, Archt., Shrine Bldg. 4-10

Tenn., Nashville—Meharry Medical College, Charles Nelson, Chmn., let contract at \$1,344,000 to Angle-Blackford Co., American Bk. Bldg., Greensboro, N. C., for three buildings as follows: Nurses home, 3 stories and basement, 35x144 ft. and 35x53 ft.; boiler house, 2 stories, 51x61 ft.; school and hospital building, 3 stories and basement, 44x123 ft. wide 43x90 ft. and 42x78 ft. ells; all fireproof, rein. conc., struc. steel, brick and tile, stone trim, slate and comp. roofs; Gordon & Kaelber, Archts., Rochester, N. Y. 4-10

Tex., Austin — Following sub-contracts awarded on 2-story, brick, stone and rein. conc. Women's Activities Bldg. at University of Texas for which George E. Wieland, Box 1861, Univ. Sta., Austin, has general contract, at \$326,729: Marble, O'Brien Marble Co., Gulf Bldg., Houston; brick, Acme Brick Co., Anderson Bldg., Fort Worth; millwork, Austin Sash & Door Co., 2000 E. 6th St.; limestone, Texas Quarries, Inc., Scarbrough Bldg.; placing rein. steel, C. M. Regan, all Austin; struc. steel, Mosher Steel & Mch. Co., 5209 Maple St., Dallas; terra cotta, Atlanta Terra Cotta Co., Glenn Bldg., Atlanta; tile work, Southland Tile & Mantel Co., 1728 N. Enderly Pl., Ft. Worth; hardware, Universal Building Products Co., Construction Bldg.; Herbert M. Greene, LaRoche & Dahl, Archts., Construction Industries Bldg., Dallas. 3-20

Tex., El Paso—Bd. of Education, J. Walter Morrow, Pres., let contract at \$73,700 to R. E. McKee Construction Co., 1916 Texas St., for East Side High School; 2 stories and basement, brick, 48 rooms, auditorium to seat 1800 people, gymnasium 40x80 ft., library 64x80 ft., 90 ft. tower above main building; Guy L. Fraser, Archt., Martin Bldg.; Braunton & McGhee, Asso. Archts., First Natl. Bk. Bldg.; also erect \$80,000, 15-room and auditorium Government Hill School and 8-room addition to Rusk School; bids in. 12-12-29 and 2-27

Va., Salem—Roanoke College, H. E. Strudwick, Bus. Mgr., rebuild 2 dormitories recently damaged by fire; \$10,600; 3 stories, hardwood floors; J. F. Barbour & Sons, Contrs., Colonial Natl. Bank Bldg.; Frye & Stone, Archts., MacBain Bldg., both Roanoke. 4-3

W. Va., Franklin—School Bd. soon begin work on \$25,000, brick and tile high school; C. E. Lee & Sons, Contrs. 10-31

Stores

Ala., Gadsden—B. B. S. Grocery Co. started work on 121x126 ft., brick and steel store on N. 4th St. to replace recently burned structure; W. G. Mynatt, Contr. 2-20

Ga., Atlanta—James E. Hickey Investment Co., Richard E. Hickey, Pres., let contract to Arthur Pew, Jr., Red Rock Bldg., for additions and alterations to 2-story and basement, 110x40 ft., brick and struc. steel, conc., terra cotta trim store, 178-80 Mitchell St., S. W.; cement, hardwood and linoleum floors, comp. and tin roof; E. C. Wachendorf, Archt., Standard Bldg. 4-10

Ga., Washington—Estate of Mrs. G. W. Lowe, Sr., care G. W. Lowe Co., started work on 2-story and basement, 140x60 ft., brick store; J. J. Chafin, Contr.; W. W. Simmons, Archt., 2153 Kings Way, Augusta.

La., Shreveport—G. Blandino, 525 E. 70th St., erect \$10,500, 1-story, 49x78 ft., brick, conc. and frame store, filling station and residence, Line Ave. and 70th St.; J. P. Annan, Archt., Slattery Bldg.; Joe Mandino, Contr., 829 Unadillo St.

N. C., Asheville—E. J. Tyler, 11 Hayes St., West Asheville, awarded contract for

alterations and addition to Racket Store, 16 Biltmore Ave.; \$25,000, 2 stories and basement, brick; S. Grant Alexander, Archt., 113 College St.

Okla., Boise City—Slack & Hood let contract to Roy D. Speer for \$17,000, 2-story, brick, steel and rein. conc. store; J. Roy Smith, Archt., Blackburn Bldg., Amarillo, Tex. 3-20

Tenn., Nashville—H. G. Hill Realty Co., 500 Second Ave., N., let contract to V. L. Nicholson Co., 102 W. Church Ave., Knoxville, for \$100,000, 6-story, 50x140 ft., brick and rein. conc., fireproof store, 9th Ave. and Church St.; to be leased to Sterchl Brothers Stores, Inc., Ed. Parry, local mgr.; Marr & Holman, Archts., Stahlman Bldg. 11-21

Tex., Dallas—E. L. Flippen and H. E. Prather, both 4600 Preston Rd., started work on first unit of shopping village proposed for Highland Park; village will eventually occupy 9-acre tract, contain 65 to 75 ground locations and represent investments of \$1,200,000; project calls for 7 groups and will take several years to complete; theater to seat 1400 to 1800 people included in plans; Fooshee & Check, Archts., 1901½ N. Harwood St.

Tex., Dallas—Dallas Transportation Co., 817 Bourton St., has contract for excavation for 1-story, 82½x200 ft., brick and conc. store, Orange and Ross Sts., for J. W. Crowds Realty Co., to be occupied by McKesson Crowds Drug Co., both 1516 Commerce St.; \$600,000 including site and equipment; Whitson & Roberts, Archts.-Contrs., Sante Fe Bldg. Incorrectly noted at Tex., Houston. 4-10

Tex., Houston—Dr. E. M. Armstrong, Union Natl. Bk. Bldg., has permit for \$42,000, 2-story, 75x75 ft., hollow tile and conc. store and clinic building, Louisiana and Milam Sts.; stone trim, tar and gravel roof, steam heat; Knutson Construction Co., Contr., Union Natl. Bk. Bldg. 3-27

Warehouses

La., Baton Rouge—Steinburg Hide & Fur Co., 820 St. Philip St., let contract at \$22,247 to A. C. Stewart, 810 East Boulevard, for 1½-story, 80x120 ft., brick warehouse; Robt. H. Goodman, Archt., Bank of Baton Rouge Bldg.

Tubize Chatillon Officers

Hopewell, Va.—Officers of the Tubize Chatillon Corporation, recently formed by the consolidation of the Tubize Artificial Silk Company of America and the American Chatillon Corporation, both of New York, include the following: Roland G. Taylor, chairman of the board; B. G. Slaughter, president; Ugo Mancini and J. E. Bassill, vice-presidents; E. R. Van Vliet, secretary and treasurer; Carl V. Riefenberg, assistant treasurer, and F. P. Huff, assistant secretary. Directors of the corporation include Charles E. Baldwin and Ugo Mancini, Rome, Ga.; A. R. Balsam, D. M. Balsam, J. E. Bassill, Howland S. Davis, S. Fusl, William Lloyd Kitchel, John Wyckoff Mettler, Gerrish H. Miliken, Rufus W. Scott and Earle R. Van Vliet, all of New York; W. P. Barba and Roland L. Taylor, Philadelphia; Dr. Marco Birolì and Alexander Poss, Milan, Italy, and Benjamin G. Slaughter, Hopewell.

Properties of the new corporation include the big mill here of the Tubize Artificial Silk Company of America, which employs the nitro-cellulose process for the production of yarns, and the new \$4,000,000 mill at Rome, Ga., employing the acetate and viscose processes.

WANT SECTION

THE CLASSIFICATIONS IN THIS SECTION ARE:

Machinery and Supplies

Under this heading are reported requests for data, prices and literature and information on machinery, supplies and miscellaneous materials of a wide variety.

Items in this department are published without charge and these columns are open for the publication of wants of all kinds relating to construction work, machinery, materials and supplies.

Building Materials and Equipment

This division comprises all classes and kinds of materials and equipment used in building and construction projects of every kind.

Bids Asked

Includes bids asked by U. S. Government, States, districts, municipalities, firms and individuals for machinery, materials, supplies and construction work.

Machinery and Supplies

Boiler and Tank.—Wood Grocery Co., Selma, N. C.—Wants prices and data on used, 30 to 50-h. p. return tubular boiler; must stand insurance inspection for 125 lb. steam pressure; used steel tank, approx. 5 ft. wide, 5 ft. and 12 ft. long, not less than $\frac{1}{8}$ in. steel.

Paper Cutting and Creasing Machinery.—D. R. Fitzroy, Lock Box 286, Biloxi, Miss.—Wants prices and data on used machinery for cutting and creasing paper into boxes; 20x30 presses or smaller.

Shaper.—McKinney & Teague (Machine and Welding Shop), Russellville, Ala.—Wants prices and data on 16, 18 or 20-in. shaper; will exchange or sell outright at sacrifice price new No. 40 Tupelo-Buffalo Blower.

Danville Welding Co., Inc., Craghead St., Danville, Va.—Wants prices and data on following:

- (1) Gear Cutters (Automatic)
- (2) Iron and Steel
- (3) Lathes
- (4) Springs (Automobile)
- (5) Tools—small
- (6) Welding Equipment.

Davis Compression Brake Corp., 232 Commercial Bldg., Richmond, Va.—Wants prices and data on following:

- (1) Drill Presses
- (2) Emery Wheels (Power)
- (3) Lathe
- (4) Motor
- (5) Shaper.

M. J. Hunt's Sons (Mchy. Dealer), 1620-28 N. Delaware Ave., Philadelphia, Pa.—Wants prices and data on following:

- (1) Boilers—A. S. M. E., vertical, economic, locomotive, and water tube types, good for 100-lb. pressure or more
- (2) Stokers—for anthracite coal, to be used with boilers from 300 to 600 h. p.

Guyan Machine Shops, Logan, W. Va.—Wants prices and data on following:

- (1) Crane—about 5 ton capacity, locomotive type, electrically or gasoline operated
- (2) Hoists—for 1 beam, 1 to 3 ton capacity, a. c. and d. c., 220 volts
- (3) Lathe—about 20 in. x 16 ft. or longer, with taper attachment
- (4) Locomotive (Electric)—6 ton, 48-in. gauge, 250 volts, not over 24 in. high, with cable reel
- (5) Locomotive (Steam)—30 ton or smaller, 38 in. gauge, for coal mine
- (6) Motors—a. c., 220 to 440 volts, 3 phase, 60 cycle, 5 to 100 h. p.
- (7) Motor-Generator Set—Ridgeway, 150 or 220 kw., with 6800-volt, 60-cycle motor, 250-volt generator
- (8) Punch and Shear—preferably No. 1½ Buffalo Universal Iron Worker
- (9) Shaper—about 24 in., preferably single pulley drive
- (10) Welding Machine—200 to 300 ampere, gasoline driven.

Miscellaneous

Aluminum Cooking Utensils.—Fred Hunt, 209 N. Maple St., Somerset, Ky.—Wants prices and data from manufacturers of aluminum cooking ware.

Wire Goods Manufacturing Tools.—W. E. Toler (Mchy. Dealer), Pawnee, Okla.—Wants prices and data on wire tools, both hand and power operated, used in manufacturing wire baskets, etc., including wire cutters, pliers, benders, forming tools, twistors, splicers, welding torches.

Luis Carreras Grau, Ronda San Pedro, 62, Barcelona, Spain.—Wants to correspond with firms willing to transfer manufacturing rights to firm in Spain.

Building Material and Equipment

Carpenter & Crout, Contrs., Box 243m Denton, Tex., want prices on following:

- Cast Stone
- Flooring—terrazzo
- Steel Sash and Trim
- Terra Cotta Trim
- Ventilators.

Deardorff & Dunn, Marks, Miss., want prices and data on all kinds of material for stores, garages, concrete work and all types of houses.

Emery Tiling Co., Contr., 316 Brainerd Rd., Chattanooga, Tenn., wants prices, samples and freight quotations on following:

- Marble (Interior)
- Slate (Structural)
- Terrazzo Materials
- Tile.

Herman-Sipe Co., Contr., Conover, N. C., wants prices on following for \$50,000 school at Newton, N. C.:

- Metal Doors
- Plaster Board.

J. W. Dehnert, Archt., 624 Esperson Bldg., Houston, Tex., wants prices on following for \$100,000 church and Sunday school:

- Cast Stone
- Flooring—hardwood, linoleum, terrazzo
- Limestone
- Marble
- Rolling Partitions
- Roofing—built-up, slate
- Steel Sash and Trim
- Tile—hollow, interior
- Brass and Bronze Work.

Louis T. Rouleau, Archt., 1130 Investment Bldg., Washington, D. C., wants prices on following for \$20,000 post office bldg.:

- Flooring—hardwood
- Limestone
- Marble
- Roofing—built-up
- Steel Sash and Trim.

Paul G. Silber & Co., Archts., 331 Debell Bldg., San Antonio, Tex., wants prices on following for bank remodeling, Seguin, Tex.:

- Flooring—tile, composition
- Limestone
- Marble.

Rev. Philip Bower, Pastor, Lutheran Church, Emmitsburg, Md., wants prices on following for \$26,000 parish house:

- Cast Concrete Slabs
- Tile—hollow.

Rev. R. O. Gerow, Bishop of Natchez, 107 S. Union St., Natchez, Miss., wants prices on following:

- Terra Cotta Trim.

Sheppard Bros., Contrs., Woodlawn, Md., want prices on following for dwellings:

- Flooring—linoleum, tile.

Bernard Wells Close, Archt., Bisbee Bldg., Jacksonville, Fla., wants prices on following for \$40,000, 1-story, 125x70 ft. building for swimming pool for Hotel Rolyat, Pasadena, St. Petersburg, Fla.:

- Cast Stone
- Roofing—tile
- Steel Sash
- Tile—hollow
- Wire Glass.

D. J. Rose & Son, Contrs., Tarboro St., Rocky Mount, N. C., want prices on following for \$75,000 dwelling.

- Flooring
- Incinerator
- Limestone
- Marble
- Tile—hollow, interior
- Brass and Bronze Work.

Geo. A. Linhardt, 122½ E. High St., Jefferson City, Mo., wants prices on following for dwelling:

- Electric Refrigerators
- Flooring—hardwood, bath tile
- Mail Chutes
- Roofing (hip)—tile
- Tile—hollow.

Hentz, Adler & Shutze, Archts., 1330 Candler Bldg., Atlanta, Ga., want prices on following for \$70,000 dwelling:

- Cast Stone
- Electric Refrigerators
- Flooring—hardwood, linoleum, tile
- Incinerator
- Limestone
- Marble
- Roofing—built-up, slate.

Guyan Machine Shops, Logan, W. Va.—Wants prices and data on:

Shed (Steel)—or building about 60x60 ft.

Henry J. Apfelbach, Archt., 840 N. Michigan Ave., Chicago, Ill., wants prices on following for \$2,000,000 hotel for Malbis Hotel Co., Mobile, Ala.:

- Dumb Walters
- Electric Refrigerators
- Elevators
- Flooring—hardwood, linoleum, terrazzo, tile
- Incinerator
- Limestone
- Mail Chutes
- Marble
- Metal Doors
- Roofing (flat)—built-up
- Steel Sash and Trim
- Tile—gypsum, hollow
- Terra Cotta Trim
- Vault Lights
- Ventilators
- Wire Glass
- Brass and Bronze Work.

Bids Asked

Asphalt (Oil).—See Road Building Materials.

Asphalt.—See Road Building Materials.

Bridges.—State of Maryland. Bids for 3 bridges. See Construction News—Bridges, Culverts, Viaducts.

Bridges.—State of North Carolina. Bids for 2 bridges. See Construction News — Bridges, Culverts, Viaducts.

Bridges.—State of Georgia. Bids for 13 bridges. See Construction News — Roads, Streets, Paving.

Bridges.—State of Louisiana—Bids for 2 bridges. See Construction News—Roads, Streets, Paving.

Bridges.—State of Virginia. Bids for 2 bridges. See Construction News — Roads, Streets, Paving.

Cement.—Chemical Warfare Service, Edgewood Arsenal, Edgewood, Md.—Bids Apr. 22 for 7140 bags cement.

Clarifier Equipment.—See Filter Plant Addition.

Coal.—Div. of Supply, Treasury Dept., Washington, D. C.—Bids Apr. 21 for furnishing eastern high volatile coal for U. S. public buildings, Washington.

Coal.—Marine Corps, Q. M. Dept., Washington, D. C.—Bids Apr. 21 for furnishing anthracite coal, delivery Annapolis, Md., Philadelphia, Pa., and Portsmouth, N. H.

Coke.—Chemical Warfare Service, Edgewood Arsenal, Edgewood, Md.—Bids Apr. 22 for 200 tons coke.

Crane.—U. S. Engr. Office, McCall Bldg., Memphis, Tenn.—Bids Apr. 21 for 15 ton locomotive crane, steam driven.

Crane.—See Power Plant Equipment.

Display Case and Refrigerating Machine.—Marine Corps, Q. M. Dept., Washington, D. C.—Bids Apr. 25 for display case and refrigerating machine, delivery Sewall's Point, Va.

Drainage Station Equipment, etc.—Sewerage and Water Bd., New Orleans, La., A. G. Moffatt, Sec.—Bids May 21 for following: Contr. 107-D, two 110-in. screw pumps for Drainage Station No. 9; Contr. 114-D, extension to drainage pumping station No. 3; Contr. 115-D, truck type switchboards, motor generators, transformers and accessories for Drainage Station No. 2; furnishing insulated wire and cable for Sewerage Station No. 17.

Elevator.—Treasury Dept., Office of Supervising Archt., Washington, D. C.—Bids May 2 for furnishing labor and materials for installing electric passenger elevator and electric dumbwaiter, U. S. M. H., Galveston, Tex.; drawings and specifications with Jas. A. Wetmore, Acting Supervising Archt.

Filter Equipment.—See Filter Plant Addition.

Filter Plant Addition.—Water Works Comsn., W. S. Patton, Mgr., Ashland, Ky.—Bids May 1 for construction of filter plant addition; filter equipment; clarifier equipment; venturi meter and recorder; valves and gates; c. i. pipes and specials; Alvord, Burdick & Howson, Engrs., 1417 Hartford Bldg., Chicago, Ill.

Filtration Plant.—See Water Works.

Filtration Equipment, Pipe, etc.—Town of Thibodaux, La., F. P. Joseph, M. E., Glenmora.—Bids April 29 for approximately 500 tons c. i. pipe and 12 tons fittings; 13 miles steel pipe; filtration equipment; pumps and general construction of work of installation.

Freight Elevator.—U. S. Engr. Office, Huntington, W. Va.—Bids Apr. 23 for electric freight elevator in warehouse at U. S. repair station, Marietta, Ohio.

Garage Equipment.—Marine Corps, Q. M. Dept., Washington, D. C.—Bids Apr. 24 for garage equipment, delivery Quantico, Va.

Gate Valves.—See Water Works.

Generators.—See Drainage Station Equipment, etc.

Hot Water Heating Boiler.—Treasury Dept., Office of Supervising Archt., Washington, D. C.—Bids May 1 for furnishing labor and material for installing hot water heating boiler, etc., in U. S. post office, Laurens, S. C.; drawings and specifications with Custodian, U. S. P. O., Laurens, S. C.

Laundry Equipment.—Commissioners, Washington, D. C.—Bid Apr. 21 for furnishing complete in place coagulating, settling, filtering and softening apparatus in laundry building at D. C. reformatory, Lorton, Va.

License Plates, etc.—State Bd. of Control, Austin, Tex.—Bids Apr. 22 for 1,450,000 pairs automobile number plates, 250,000 pairs commercial motor vehicle plates, 25,000 single trailer plates, 15,000 single dealer plates, 6000 pairs motor bus plates, 8000 single motorcycle plates, 3000 single motorcycle side car plates and 25,000 chauffeur badges.

Lumber.—Commanding Officer, Augusta Arsenal, Ga.—Bids Apr. 21 for 3750 ft. poplar or cypress and approx. 34,500 ft. pine.

Mechanical Refrigerating Units.—Marine Corps, Q. M. Dept., Washington, D. C.—Bids Apr. 24 for 2 mechanical refrigerating units, delivery Sewall's Point, and Quantico, Va.

Machinery, Tools, etc.—Bd. of Awards, Office of City Register, City Hall, Baltimore, Md.—Bids Apr. 23 for furnishing machinery, tools and other materials for sheet metal, electric, wood and diversified shops for Dept. of Education.

Milling Machine.—Bureau of Supplies and Accounts, Navy Dept., Washington, D. C.—Bids Apr. 22 for furnishing milling machine to Naval Academy, Annapolis, Md.

Meter (Watt-Hour).—Marine Corps, Q. M. Dept., Washington, D. C.—Bids April 23 for meter, watt-hour, delivery Quantico, Va.

Paint.—Marine Corps, Q. M. Dept., Washington, D. C.—Bids Apr. 23 for 408 gal. paint (ready mixed), delivery Quantico, Va.

Photolithographing.—Dept. of Commerce, U. S. Patent Office, Washington, D. C.—Bids May 5 for producing, during fiscal year ending June 30, 1931, by photolithographic or other processes, copies of drawings of weekly issues of patents, and for reproducing exhausted copies of drawings and specifications, etc.

Photo Prints.—Dept. of Commerce, U. S. Patent Office—Bids May 5 for producing, in city of Washington, during fiscal year ending June 30, 1931, copies of drawings of pending applications and patents, trade-mark applications and of foreign patents, papers and exhibits by photographic or other process.

Pipe, Pipe Covering, etc.—Chemical Warfare Service, Edgewood Arsenal, Md.—Bids Apr. 21 for 1200 pieces manganese pipe covering, 10,500 gt. galv. pipe, 400 boiler tubes, 15,500 ft. wrought pipe.

Pipe.—See Road Building Materials.

Pipe (Cast Iron).—See Filter Plant Addition.

Pipe (Cast Iron).—See Filtration Equipment, Pipe, etc.

Pipe (Cast Iron).—See Water Works.

Pipe (Reinforced Concrete).—See Sewer Construction.

Pipe (Reinforced Concrete).—See Water Works.

Pipe (Steel).—See Filtration Equipment, Pipe, etc.

Pipe (Wood Stave).—See Water Works.

Piping and Valves, etc.—See Water Works.

Plumbing Fixtures, etc.—Treasury Dept., Office of Supervising Archt., Washington, D. C.—Bids Apr. 30 for plumbing fixtures and miscellaneous repairs to plumbing and heating, U. S. post office, Paris, Tenn.; specifications with Custodian, U. S. P. O., Paris, Tenn., and Office Jas. A. Wetmore, Acting Supervising Archt., Washington.

Power Plant Equipment.—City of Kinston, N. C., William C. Olsen, Inc., Engrs., Raleigh Building & Loan Bldg., Raleigh.—Bids May 7 for furnishing, delivering and erecting following power plant equipment, material and apparatus: 3500 kw. at 50% P. F., 4375 kw. at 100% P. F. turbo generator unit, with direct connected exciter, together with all appurtenances and accessories specified; turbo-generator air cooler; surface condenser for 3500 kw. turbine complete with motor driven condensing water circulating pump; duplicate dry vacuum pump; motor driven hot well pump; steam turbine driven hot well pump; inter and after condenser and appurtenant equipment; automatic atmospheric exhaust relief valve; turbine room crane for partial electrical operation; generator switchboard panel with instruments and appurtenant equipment; changes and modifications to present switchboard, etc.

Pumps.—See Filtration Equipment, Pipe, etc.

Pump, etc.—Office of State Road Dept., Robert W. Bentley, Chmn., Tallahassee, Fla.—Bids Apr. 22 for triplex high pressure force pump, capacity not less than 80 gal. per min., with relief valve and gauge; not less than 35 h. p. engine, mounted on trailer type truck; bronze bearings and otherwise suitable for pumping salt water; also approx. 20-ft. lengths, threaded both ends with couplings suitable for use in salt water; B. M. Duncan, State Highway Engr.

Pump (Dry Vacuum).—See Power Plant Equipment.

Pump (Circulating).—See Power Plant Equipment.

Reservoir.—City of Selma, Ala., Albert Thalheimer, Pres., Water Works Comsn.—Bids May 8 for furnishing materials and constructing 1,000,000 gal. capacity, covered, rein. conc. reservoir and appurtenances.

Road Building Materials.—Office of State Road Dept., Tallahassee, Fla.—Bids Apr. 22 for following road building materials: Project No. 40-B, Road No. 4, Brevard County from Titusville to Volusia County line, approx. 11,700 gal. oil asphalt O-H-1, summer viscosity; approx. 682 tons No. 4 slag; Project No. 751, Road No. 40, Walton County, approx. 1708 tons No. 4 Slag (regular), approx. 26,625 gal. T-C-2 prime and approx. 34,167 gal. oil asphalt, summer viscosity; Project No. 752, Road No. 40, Walton County, approx. 2046 tons No. 4 slag (regular), approx. 30,694 gal. T-C-2 prime and approx. 40,925 gal. oil asphalt, summer viscosity.

Road Building Materials.—Office of State for following road material: Project No. Road Dept., Tallahassee, Fla.—Bids Apr. 22 756, Road No. 19, Marion County, alternate bids desired corrugated metal, rein. conc. and vitrified clay pipe, approx. 500 lin. ft., County, alternate bids desired on cast iron, 18 in.; Project 878, Road No. 77, Gilchrist rein. conc. and vitrified clay pipe, approx. 164 lin. ft., 24 in. and 280 lin. ft. 18 in.; also alternate bids on corrugated metal, rein. conc. and vitrified clay pipe, approx. 500 lin. ft. 18 in.

Road.—Poteau, Okla. See Construction News—Roads, Streets, Paving.

Roads.—Towson, Md. Bids for 3 roads. See Construction News—Roads, Streets, Paving.

Roads.—State of North Carolina. Bids for 8 roads. See Construction News—Roads, Streets, Paving.

Roads.—State of Maryland. Bids for 8 roads. See Construction News—Roads, Streets, Paving.

Roads.—State of Georgia. Bids for 4 roads. See Construction News—Roads, Streets, Paving.

Roads.—State of Georgia—Bids for 2 roads. See Construction News—Roads, Streets, Paving.

Roads.—State of Louisiana—Bids for 11 roads. See Construction News—Roads, Streets, Paving.

Roads.—State of Virginia. Bids for 3 roads. See Construction News—Roads, Streets, Paving.

Sewer Construction.—Comms. of Sewerage, 400 M. E. Taylor Bldg., Louisville, Ky.—Bids April 29 for constructing Crittenden Drive Sewer, Contr. No. 46, including, 2754 ft. of 51-in. and 877 ft. of 48-in. rein. conc. circular sewer; 4'-4-in. x 6'-6" inverted egg rein. conc. sewer, diversion chamber, manholes, etc., included in above lengths; Woolsey M. Caye, Tech. Engr.

Sewer Construction.—City of Charlottesville, Va., H. A. Yancey, City Mgr.—Bids May 2 for construction of sanitary sewers and appurtenances; city will furnish all pipe, manhole castings and flush tanks, together with minor materials; approximate quantities involved are as follows: 53,000 cu. yds. excavation; 82,000 ft. of 8-in., 600 ft. of 10-in., 200 ft. of 12-in., 1600 ft. of 15-in., 3000 ft. of 18-in. and 4000 ft. of 24-in. sewer line; 330 standard manholes; 25 drop manholes; 109 flush tank structures; in addition to above will be required small amount of c. i. pipe and fittings, all of which will be furnished f. o. b. cars by city, and is to be hauled and incorporated into work by the contractor; plans, etc., from office of Lee H. Williamson, Consult. Engr., City Finance Bldg., Charlottesville.

Sheet Steel.—Marine Corps, Q. M. Dept., Washington, D. C.—Bids Apr. 21 for 5400 lb. sheet steel, delivery Quantico, Va.

Shaper (Motor Driven).—Bureau of Supplies and Accounts, Navy Dept., Washington, D. C.—Bids April 29 for motor driven shaper.

Signal System, etc.—Treasury Dept., Office of Supervising Archt., Washington, D. C.—Bids Apr. 22 for furnishing and installing signal system, etc., in U. S. Internal Revenue Bldg., Washington, D. C.

Slag.—See Road Building Materials.

Steel.—Comms. Dist. of Columbia, Washington, D. C.—Bids Apr. 29 for sheet steel for automobile license tags.

Steel Cases.—Div. of Supplies, Dept. of Commerce, Washington, D. C.—Bids Apr. 22 for 44 steel cases and 20 steel bases.

Street.—Eatonton, Ga.—See Construction News—Roads, Streets, Paving.

Streets.—St. Louis, Mo. See Construction News—Roads, Streets, Paving.

Surface Condenser.—See Power Plant Equipment.

Tires and Tubes.—State Office Building, Richmond, Va.—Bids Apr. 13 for pneumatic balloon, heavy solid tires and tubes, 6 months period, value approx. \$40,000.

Transformers.—See Drainage Station Equipment, etc.

Turbo-Generator.—See Power Plant Equipment.

Tubes (Radio).—Div. of Supplies, Dept. of Commerce, Washington, D. C.—Bids Apr. 21 for radio tubes as required during fiscal year 1931.

Valves.—See Power Plant Equipment.

Valves and Gates.—See Filter Plant Addition.

Water Mains.—City of Charlotte, N. C., R. W. Rigsby, Mgr.—Bids April 29 for constructing 30-in. water main from raw water reservoir to city filtration plant; work includes 3 mile pipe with necessary fittings and valves.

Water Works.—City of Clinton, Okla., Benham Engineering Co., Consult. Engrs., Oklahoma City—Bids April 22 for furnishing all labor, tools and materials necessary for constructing water supply improvements and extensions as follows:

Section A—Earth filled dam, complete with conc. cut-off core-wall, riprap, clay puddle, Ambursen type conc. spillway section, enclosed filtration plant, complete with intake, machinery, apparatus, piping and valves and all grubbing and clearing, relocation of highway and resetting bridge.

Section B—Gravity supply pipe line consisting of 18-in. and 16-in., continuous wood stave pipe, c. i. alloy steel, plain coated steel or rein. conc., complete with gate valves, air valves, blow-offs, special castings, trenching and back filling and all work incident thereto; furnishing and installing altitude valve.

Section C—Furnishing and laying 8-in., 6-in., 4-in. and 2-in. c. i. city water mains, including trenching and backfilling, gate valves, special castings, cutting and replacing paving and making wet connections; furnishing and installing recording water pressure gauge at City Hall.

Wire and Cable.—See Drainage Station Equipment, etc.

INDUSTRIAL NEWS OF INTEREST

Items of news about industrial, railroad or financial interests, building operations, construction work, municipal improvements, or the sale of machinery or the letting of contracts in the South or Southwest, are invited from our readers, whether they are advertisers, or subscribers, or not. We invite information of this character from readers in the North and West about their Southern business operations, as well as from Southern readers. News of value will be published just as readily when from non-advertisers as from advertisers.

Reading and Thomas Iron Companies Elect Officers.

At the recent annual meeting of the Reading Iron Company, Reading, Pa., the following officers were elected: Leon E. Thomas, president; John M. Callen and P. N. Guthrie, Jr., vice-presidents; Raymond J. Wenger, vice-president, comptroller and assistant treasurer; Henry N. Yost, treasurer, and George W. Delany, secretary. In addition to Messrs. Thomas, Callen, Guthrie and Wenger, the board of directors includes Andrew J. Maloney and Randolph Stauffer. Mr. Thomas was elected president and Mr. Callen vice-president of the Thomas Iron Company, which is owned by the Reading Iron Company, the other officers including Mr. Delany, secretary; Mr. Yost, treasurer, and Mr. Wenger, assistant treasurer.

New TAG Instrument Factory.

The C. J. Tagliabue Manufacturing Company, Brooklyn, N. Y., manufacturers of industrial instruments, has opened a branch factory at Shreveport, La., for repair work and special attention to emergency orders. Repair facilities of the main factory have been nearly duplicated in the Shreveport branch in special equipment, trained personnel and other details. Stocks will be maintained and emergency orders filled for all standard oil testing instruments, thermometers, hydrometers, recording pressure gages, standard automatic controllers for temperature and pressure and other instruments. The Shreveport factory will be in charge of C. L. Huffman, district manager, serving Texas, Oklahoma, Kansas, Missouri, Arkansas, Mississippi, Tennessee, Louisiana and Alabama.

New Chain Belt Representative.

The Chain Belt Company, Milwaukee, Wis., announces appointment of the Corbin Supply Company, Macon, Ga., as representative of its complete line of chain and transmission equipment. Rex products of the Chain Belt Company include a broad line of chain and power transmission equipment, conveyors and conveying systems for an important series of industries, concrete mixers, pavers, pumps, saw rigs, plaster and mortar mixers and allied products.

Association of Purchasing Agents.

The fifteenth annual convention of the National Association of Purchasing Agents will be held in the Stevens Hotel, Chicago, from June 16 to 19, inclusive; the Inform-A-Show will be conducted there in conjunction with the convention. There are 134 booth spaces. G. A. Renard is secretary-treasurer of the National Association of Purchasing Agents, Inc., with offices at 11 Park Place, New York.

Cotton Mill Representatives Combine.

The consolidation of Catlin & Co., Inc., and the Farish Company, Inc., drygoods commission merchants of New York representing cotton mills in North Carolina, South Carolina and Georgia, has been announced. A. J. Cumnock, president of Catlin & Co., will be president of the consolidated company and G. E. Huggins, president of the Farish Company, will be its treasurer.

Celebrates Fiftieth Anniversary.

Organized in Fulton, N. Y., on March 20, 1880, the Victoria Paper Mills Company has reached the half-century mark, experiencing a steady growth in the production of toilet papers and tissue specialties. Soon after its organization, it purchased a mill and began in a small way to manufacture newsprint, and wood pulp. B. I. Reider, vice president of the B. F. Bond Paper Company, Baltimore, joined the company in 1926 as vice president and sales manager, and in the same year the company introduced a line of high grade toilet tissues. Officers include W. L. Forsyth, president; B. I. Reider, vice president; H. A. Wilson, vice president and treasurer, and J. K. Carroll, secretary.

Dodge Boats in Great Britain.

The Horace E. Dodge Boat and Plane Corporation of New York and Newport News, Va., has authorized the Gordon England Company, London, to sell Dodge boats throughout Great Britain. Direct shipments will be made by steamer from the Dodge plant recently completed at Newport News to London. The Gordon England Company, manufacturer of automobile bodies, will organize a separate marine department to market the boats. The Dodge company has applications from prospective distributors and dealers in Europe, the Orient, Central and South America.

Vice-President of Manganese Steel.

The American Manganese Steel Company, Chicago Heights, Ill., announces appointment of A. W. Daniels as vice-president in charge of sales. Mr. Daniels is said to be an authority on markets and marketing of manganese steel.

Trade Literature

Weighing Machines.—A new catalog, "Beginning the Second Century," has been issued by Fairbanks, Morse & Co., Chicago, scale manufacturers. The catalog is put out in celebration of the centennial anniversary of the founding of the company and tells something of its accomplishments, aims and aspirations. The company now produces new types of weighing machinery—dial scales that weigh instantly and giant scales weighing in hundreds of tons—new types of motors, huge pumps, Diesel engines of more than 1000 horsepower and enormous railway coal-lifting stations.

Construction Equipment.—The National Equipment Corporation, Milwaukee, Wis., has issued a folder listing 54 different items of construction equipment which it manufactures, including such units as backfillers, bar benders, bar cutters, buckets, concrete bulldozers, cableway skips, derricks, cranes, draglines, dumpers, excavators, pumps of various types, saw rigs, shovels, elevators, ditchers, Weigh-mix, trailers and other equipment. Products listed include those of the Koehring, Insley, Smith, Parsons and Kwik-Mix divisions of the company.

"Character Cloth."—The Character Products Company, Salisbury, N. C., has issued a folder telling in condensed form of "Character Cloth," first manufactured in this country in a model mill built at Spartanburg, S. C., in connection with the Textile Industrial Institute. The product was first made 19 years ago by Christian students in a mission school at Songdo, Korea, on hand-made looms, the idea being conceived by C. H. Deal, a missionary. Mr. Deal is vice-president and general manager of the Character Products Company, Inc., which now manufactures the cloth. H. A. Rouzer is president of the company and S. H. Grimes, secretary-treasurer.

Road Graders, Etc.—The J. D. Adams Company, Indianapolis, Ind., has issued catalog No. 30 illustrating and describing Adams adjustable leaning-wheel graders and other road equipment, the graders coming in 6½, 7, 8, 10, 12 and 14-foot blade lengths. Two new machines are described in the catalog—motor grader No. 101 and the Adams one-man road maintainer No. 61. Copies of the catalog may be obtained from the company's branches at Memphis, Dallas, or Atlanta.

Virginia Industrial Directory.—The Industrial Directory of Virginia, revised for 1929, compiled and published with cooperation of the Department of Labor and Industry and the Virginia State Chamber of Commerce, Richmond, was recently issued. The publication contains a list of business firms, with addresses and nature of business conducted, together with information on cities and counties of the state and their industrial advantages. J. Milton Ball, Norfolk, is publisher.

Tall Buildings.—The American Institute of Steel Construction, Inc., New York, has published a volume, "The Skyscraper," which presents a study of the economic height of modern office buildings and depicts the growth and development of that type of structure. The publication was prepared by W. C. Clark, economist and vice president of S. W. Straus & Company, and J. L. Kingston, of Sloan & Robertson, architects, both of New York.

Safety Switches.—A new catalog, No. 226, on safety switches is being distributed by the Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa. The publication presents a complete line of porcelain base safety switches, industrial safety switches, motor starting switches, range and commercial cooking switches, meter service switches and breakers and overload protective devices.

Bridge Construction.—The Kansas City Bridge Company, Kansas City, Mo., is distributing a booklet of progress pictures and a reprint from the March issue of the Construction Advisor, illustrating and describing an interesting piece of steel erection recently completed by the company at Duluth, Minn. This involved the construction of a vertical lift span to replace an aerial ferry bridge.

Nickel Steel.—Recent publications issued by the International Nickel Company, Inc., New York, include bulletins Nos. 15 and 16, the former dealing with nickel-chromium steels for high temperature service, valves and bolts, and the latter with the approximate relations between Brinell, Rockwell and Shore hardnesses and the tensile strengths of structural alloy steels.

Industrial Surveys.—A 64-page book, "Industrial Surveys—An Outline for Communities and Manufacturers," has been prepared by George C. Smith, director, Industrial Bureau of the Industrial Club of St. Louis. The volume was recently announced at the annual National Conference of Industrial Bureau Managers in Washington, sponsored by the United States Chamber of Commerce. It was written in a desire to prevent hazardous methods of industrial growth and is being distributed to those desiring to foster industrial development of their communities and as a guide to industries seeking locations for branch plants or contemplating relocation of their main facilities.

Port Facilities.—Two volumes, Report No. 3, Part 1 (Revised 1929), on the Port of Mobile, Ala., and Report No. 3, Part 2 (Revised 1929), on the Port of Pensacola, Fla., are issued by the Board of Engineers for Rivers and Harbors of the War Department in co-operation with the United States Shipping Board, Washington, D. C. The reports contain information on port and harbor conditions, port customs and regulations, services and charges; fuel and supplies; facilities available for service to commerce and shipping, including piers, wharves, ship repair plants, dry docks and marine railways, coal and oil bunkering facilities, grain elevators, storage warehouses, bulk freight accommodation, floating equipment, and wrecking and salvage equipment; railroad and steamship lines, and their charges and practices in connection with terminal service.

Road Maintainer.—The J. D. Adams Company, Indianapolis, Ind., has issued a folder announcing the Adams one man road maintainer No. 61, a new single control machine which may be hitched to any tractor and is operated by the tractor operator. The folder describes it in some detail and presents illustrations showing its construction and operation.

Freeport Sulphur.—Parsons & Petit, New York, selling agents of the Freeport Sulphur Company, New York, with mines at Freeport, Texas, are distributing their annual statistical card on sulphur, pyrites and sulphuric acid. The card presents prices, with data on sulphur exports, etc., for 1929. Texas now produces 99 per cent of the output of the United States, 2,362,000 tons in 1929.

Motors, Generators, Compressors, etc.—Bulletin No. 37, listing Rockford rebuilt and new equipment, including motors, generators, compressors and other machinery, has been issued by the Rockford Power Machinery Company, Rockford, Ill.

Grain Handling Costs.—A booklet published by the Board of Trade, Kansas City, Mo., discusses the cost of handling grain through terminal markets, often referred to as primary markets. The subject is timely in view of present public interest in the grain marketing situation.

Friction Clutches, Winches, Etc.—A. L. Schultz & Son, Chicago, is distributing a catalogue illustrating and describing the Schultz friction clutch, winches and other products. The duplex clutch is designed for use on countershafts, hoisting drums or other mechanisms requiring both forward and reverse motion, while the single clutch may be applied to rope sheaves and other mechanisms. The catalogue also covers Schultz hand power winches and some units of the Schultz machinery and equipment specialties.

Standard Costs: Installation, Operation and Use. By G. Charter Harrison, of Stevenson, Harrison and Jordan. 308 pp. The Ronald Press Company, N. Y. Price \$5.00.

Standard cost systems, which have been developed over a considerable period of time, are recognized as an essential part of modern business management methods, bringing to executives a means by which performance may be measured and pointing out leaks and inefficiencies as well as exceptional results. In his book, Mr. Harrison makes available details of methods he has worked out, presenting practical procedure for setting standard costs in factory, shop and sales office; designing, installing and operating standard cost systems; considering causes of cost and profit variations, and reporting results of the application of standard costs. He traces the various transactions of a standard cost system by arranging on a series of charts the necessary data.

\$2,500,000 Hotel Bids Invited

Atlanta, Ga.—Bids will be opened April 28 in the office of G. Lloyd Preacher & Company, Inc., architects, for constructing the new \$2,500,000 Dinkler Hotel here for the Dinkler Hotels Company, Inc. The building will be 19 stories and basement with penthouse and tower, 201 by 104 feet, and 6 stories and basement, 193 by 101 feet: of steel and reinforced concrete, limestone trim and probably granite base. Thompson, Holmes & Converse, New York, are associated architects. The following contractors are estimating: Carr Construction Company, Southern Ferro Concrete Company and National Construction Company, all of Atlanta; John M. Geary Company, Asheville, N. C.; Dilks Construction Company, New York and Chicago, and the United Engineers & Constructors, Inc., Philadelphia and New York.

Oil Field Office Building and Dwellings

Oklahoma City, Okla.—A contract will soon be awarded by the Indian Territory Illuminating Oil Company and subsidiaries to erect an office building here to facilitate their operation and development of oil and gas properties in the Oklahoma City area. The building will be 112 by 64 feet, two stories and basement, of brick veneer, with asbestos shingle roof. The company will also let

contract soon for 193 dwellings throughout the field to accommodate its supervisory force. Nine miles of roads to give access to the field and tie in with state highways have been completed.

One Aim of Salesmanship

A big word in American business is salesmanship. Salesmanship distributes goods, creates a demand for more. Advertising is good salesmanship. Convincing conversation that knows when to stop is good salesmanship.

Recently Henry Ford described Gerard Swope, president of the General Electric Company, in few words as a "good salesman."

After luncheon with W. R. Hearst at the inauguration of the new Hearst newspaper building in Detroit, Mr. Ford took Mr. Hearst through the Ford factory, and salesmanship was discussed.

"Swope, head of the General Electric Company, is a great salesman," said Henry Ford. "That company has two wonderful men in Owen D. Young and Gerard Swope."

"Swope came here and in less than 15 minutes sold me a 140,000-horsepower turbine engine, convincing me that his company could build it for me better than I could build it myself."

To be a good salesman, the first thing is to listen.

The second thing is to talk convincingly.

The third, and most important, is to know when to stop talking.

\$100,000,000 GAS LINE PROJECTED

Insull and Other Interests Plan Mains from Texas to Chicago

Negotiations are being consummated for a natural gas pipe line from the Texas Panhandle to Chicago, a distance of 950 miles, which is expected to involve a cost of \$100,000,000 initially and to be ready for the delivery of natural gas to the Chicago area within a year. Sponsors of the project are said to include Insull, Son & Company, Inc., Chicago, a subsidiary of the Insull Utilities Investments, Inc.; the Cities Service Company, the Texas Corporation, the Standard Oil Company of New Jersey and the Columbian Carbon Company, all New York; the Skelly Oil Company, Tulsa, Okla.; the Phillips Petroleum Corporation, Bartlesville, Okla., and Henry L. Doherty & Company, New York, affiliated with the Cities Service Company. Construction will be handled under the direction of the Doherty organization, it is understood, and will involve the laying of a single line of 22-inch pipe, initially, and the construction of pumping stations so placed as to facilitate laying parallel mains as consumption is increased. Gas reserves in the Texas Panhandle controlled by interests involved are estimated at four trillion cubic feet, and it is figured that the proposed line will have a daily capacity of 100,000,000 cubic feet.

Ludlow Valve Mfg. Co. Elects New Officers

Company to Increase Facilities as Part of Expansion and Diversification Program.

James H. Caldwell has been elected chairman of the board of the Ludlow Valve Manufacturing Co., Troy, N. Y., with which he has been associated as a general manager for 41 years, during 27 of which he was also president of the company. Born at Mobile, Ala., Mr.



W. H. Lolley

particularly in behalf of the Samaritan Hospital and the Y. M. C. A. of Troy.

Always active in the interests of the Waterworks Manufacturers' Association, Mr. Caldwell has served as its president and has been chairman of the Flange Standardization Committee of the Valve Manufacturers' Association.

The presidency of the Ludlow Valve Manufacturing Co. has been filled by the election of William H. Lolley, who is also director and general manager. For a number of years associated with Ludlow interests as sales and engineering consultant, Mr. Lolley brings to his new

Caldwell is a graduate of Rensselaer Polytechnic Institute, Troy, and a member of its board of trustees. He is also a director of the Manufacturers' National Bank of Troy and active in philanthropic work, particu-

larly in behalf of the Samaritan Hospital and the Y. M. C. A. of Troy. Caldwell is a graduate of Rensselaer Polytechnic Institute, Troy, and a member of its board of trustees. He is also a director of the Manufacturers' National Bank of Troy and active in philanthropic work, particularly in behalf of the Samaritan Hospital and the Y. M. C. A. of Troy.

The Ludlow Valve Manufacturing Co. was organized and started business at Troy in January, 1866. By 1896 the business had successively outgrown three plants. At that time they purchased the property of the Troy Steel & Iron Co. and started construction of a new factory along the Hudson River adjoining the N. Y. Central freight yards, later building a foundry addition and remodeling its machine shop. The company has recently acquired additional ground and contemplates an increase of production facilities at an early date as part of a program of expansion, diversification of products and general development.



J. H. Caldwell

visited several leading manufacturing centers and interviewed some of the prominent figures in American industry. Further, said Mr. Ross:

"While it is true that much of this work is being done in such a manner as to avoid large capital outlays, nevertheless astute manufacturers are taking advantage of this breathing spell to put their 'houses in order.' They are going to be ready, when normal production is restored, to operate in a more efficient and economical manner than ever before. It is interesting to note how rapidly the average American manufacturer is putting his business on a scientific basis. Never have manufacturers paid such close attention to fundamental laws of management and engineering as today."

\$26,000,000 CONSTRUCTION PROGRAM AT WACO

Work Completed in 1929, Now Under Way or Proposed, Includes Big Projects

Waco, Tex. — Construction projects completed in and around Waco in 1929, or which are under way or proposed, represent a cost of more than \$26,000,000, according to estimates of the Waco Chamber of Commerce. The cost of projects completed last year will reach a total of \$6,500,000, it is estimated, including an expenditure of \$3,000,000 to build the plant of the Atlas Portland Cement Company of Texas; \$1,500,000 for the Hilton Hotel, for which an annex was completed in 1929, and \$800,000 to build the Borden Company of Texas plant. Other projects completed during the year embrace a \$425,000 professional building, \$400,000 medical arts building, \$200,000 Karem Shrine temple, \$100,000 to remodel Raleigh Hotel and a similar amount to remodel the Hippodrome theater.

It is estimated that construction projects now under way or proposed will represent a cost of \$19,973,100, including the following outstanding items: Road program, \$7,500,000; private corporation projects, \$5,255,327; dam across Bosque River, \$2,000,000; dwelling construction, \$1,144,698; Baylor University buildings, \$732,000; school buildings and additions, \$660,000; bridge over Brazos River, \$500,000, and paving in Waco, \$500,000. In addition to these items, other work will include a \$200,000 bridge across Lake Waco, \$250,000 city hall, \$190,000 city bridges and culverts, \$250,000 city storm sewer and drainage, \$200,000 expenditures by Texas Power and Light Company, \$250,000 Dairyland ice cream plant, \$135,000 expenditures by Texas Cities Gas Company, \$75,000 airport, \$70,000 fire station and alarm system, \$30,000 city incinerator, \$25,000 improvements by the San Antonio Machine & Supply Company of Waco and a \$6075 police call system.

\$10,000,000 in Birmingham Construction Projects

Birmingham, Ala. — Construction work of all kinds under way in Birmingham, not to mention building in progress in the suburban districts, will approximate \$10,000,000. New buildings under construction will represent an investment of \$3,500,000, to which may be added a grade elimination program, street and sewer construction, storm sewers provided in a recent \$3,000,000 bond issue, and a \$1,000,000 airport. Important building items under way include the new Jefferson County courthouse, for which contract was awarded at \$2,531,000, exclusive of furnishings, and the Ramsay Technological Building in South Highlands, the first unit of which will cost \$300,000. Other structures include the North Birmingham school, plants of Swift & Company, General Motors, Wood-Chevrolet, Homewood exchange of Southern Bell Telephone and Telegraph Company and a plant of the Union Carbide and Carbon Company. In addition

to these items, large sums are being expended for improving the systems of the Southern Bell, Birmingham Water Works Company and the Birmingham Gas Company. Much home building is in progress in the Shades Valley and other residential sections.

Believes in Industrial Preparedness

"That leading manufacturers throughout the country are confident about the progress of industry during the coming year is best evidenced by the fact that hundreds of them are busily engaged at the present time in renovating their plants, re-designing their products, re-organizing their companies and conducting searching inquiries into their manufacturing processes and routines."

Such was the recent statement of G. I. Ross, chief engineer of MacDonald Bros. Inc., Boston, Mass., nationally-known production engineers, after a flying trip across the continent, during which he

Savings From Scrap

Petroleum Industry Saves Large Sums By Salvaging Old Equipment—May Offer Some Pointers to Manufacturers in Other Lines.

Savings estimated at millions of dollars may be attained in the oil industry by the systematic salvaging of old equipment, according to the United States Bureau of Mines. Used or partly damaged material often is consigned to the scrap pile without proper thought as to the possibility of its being worked over, repaired, or made to serve some useful purpose in the industry. For a number of years some of the larger oil companies have been doing considerable salvage work; many have departments whose particular object is the repair and care of salvage materials. Bureau of Mines engineers have made a study of the methods of salvaging used equipment as practiced by various companies.

It is important that salvage operations be methodical and businesslike and that material be carefully inspected and when possible tested before being put back into stock, says C. P. Bowle, in a report published by the Bureau of Mines. Some store departments thoroughly oil and paint all salvaged materials to give the appearance of new material. Another system, which the Bureau believes will overcome the prejudice that certain workers have against using salvaged equipment, has been adopted by one of the large Mid-Continent refining companies. All salvage materials are plainly marked by a white cross, and superintendents and foremen have been notified that no charge will be made against jobs for any reclaimed material they use.

The salvage department is usually at some central point in the field or refinery and if possible near the main stores department. Many companies instruct their truck drivers and teamsters when delivering new materials about the field to pick up discarded second-hand material and to deliver it to the salvage yard on return trips. This material is carefully examined and segregated. Material badly worn or damaged beyond repair is later sold as junk at the prevailing market price, and that which can be repaired economically is listed and its value credited to the job from which it has been returned.

Men engaged in salvage work should be provided with necessary tools to carry on the work in a thorough and efficient manner, and they should be properly housed. Buildings in which salvage operations are carried on should be substantially constructed, well lighted and ventilated, and equipped with traveling hoists capable of handling materials up to 3000 pounds in weight. A building of reasonable size for handling miscellane-

ous materials to be salvaged, exclusive of large pipe and casing, can be built at a cost of \$10,000 to \$15,000.

In addition to a machine shop, forge shop, and carpenter shop, equipment for the salvage department should include pipe-straightening machines large enough to take the largest size of casing used on the various leases, necessary sizes of pipe cutters, suitable lathes, a soaking bath for small fittings, a set of valve-reseating tools, cutting and welding apparatus, wrenches in assorted sizes, brass mallets, machinists' hammers, cold chisels, wrenches for seating valve rings, ball grinding apparatus, emery wheels, grindstones, files, hack saws, emery paper, and other small equipment such as is used by mechanics, a hydraulic hand pump for testing valves up to 2000 pounds pressure, pipe and chain tongs of desired sizes, small forge and anvil, stocks and dies for cutting threads on bolts, a set for pipe up to 2 inches in diameter, and a sucker rod tensile testing machine; for some companies the equipment includes a small brass foundry and equipment.

As the casing used in drilling an oil well represents the largest single item of expense for material, it presents the greatest opportunities for economy in salvaging. Pulling casing to be reclaimed and resold has come to be a profitable business in many fields, especially in the Humble field of Texas.

Nearly all the larger companies and many smaller ones are now making some use of their discarded sucker rods. In some fields about 50 per cent of a pile of oil-field junk consists of discarded cable-tool drilling bits. These bits are worth comparatively little as junk. However, the larger oil companies seldom sell discarded drilling bits for junk, particularly the larger sizes. A 15-inch bit can be reworked into an extra-long 10-inch bit, worth \$144, at a cost of \$28. Such a bit weighs about 1200 pounds and would seldom bring more than \$1.75 if sold as junk. Recapping 12-inch bits costs approximately \$35 and it is claimed makes the bit as good as new; a new bit of this size is worth about \$168.

Relatively large savings can be effected by repairing underreamer lugs. These when not too badly worn can be built up by welding manganese steel rods on the edges and then reshaping and tempering. A set of lugs costing \$85 originally can usually be repaired and put into first-class condition at a cost not exceeding \$5.

Some of the larger oil companies have

found it economical to operate a small brass foundry at their central field shops. Copper wire, brass-lathe cuttings and chips, discarded valve stems and trimmings, and other discarded copper and brass are brought in from the fields and melted down.

One of the large Mid-Continent companies operating in a district where water for drilling purposes as well as water produced with the oil is highly corrosive finds it economical to repair rather than discard its field water and rundown tanks when they are corroded through in spots.

By the very nature of the work salvage in pipe lines and pumping systems does not permit money saving as does salvage in the producing division of the oil industry. The pumps are in constant need of repair. Their cylinders must be relined and rebored from time to time, new pistons put in, and valves replaced; but, barring accidents, the other parts of the pumps will usually remain intact indefinitely.

Valves and fitting probably constitute the largest single item of material salvaged about refineries. Discarded valves and fittings of various sizes are gathered from time to time by the trucks that deliver materials about the refinery or fields and are taken to the salvage department.

Study of the salvage operations in the petroleum industry indicates that well-organized and efficiently operated salvage departments pay large dividends to an oil company, whatever its size or scope of operation. The Bureau of Mines is confident that an accurate accounting of its salvaged materials will not only convince any oil company that salvaging is worth while but will show the savings possible thereby.

\$3,592,000 Rail Line Authorized

Edwight, W. Va.—The Chesapeake and Ohio Railway Co., C. W. Johns, chief engineer, Richmond, Va., has been authorized by the Interstate Commerce Commission to build an extension of the Garsh Fork line of the Cabin Creek branch in Raleigh County from Edwight to Surveyor, a distance of 19.2 miles, connecting with its Piney Creek branch. The cost of line construction is estimated at \$2,377,000, but other construction in connection with the project will bring the total to \$3,592,000, it is said.

\$1,000,000 Hospital Announced

St. Louis, Mo.—Plans have been announced by St. Louis University for building the \$1,000,000 Firmin Desloge Hospital building on the west side of Grand boulevard between Vista avenue and Rutger street. Study & Farrar, St. Louis, are the architects.

\$10,000,000 PAPER MILL FOR FLORIDA

International Paper Company Plans Big Project

Panama City, Fla.—The Southern Kraft Corporation, said to be a new subsidiary of the International Paper Company, New York, will build a large paper manufacturing plant here, according to William L. Wilson, chairman of the Industrial Committee of the Florida State Chamber of Commerce, Jacksonville. The plant will be located on a tract of 150 acres bought by the city and leased to the company for a nominal sum and will represent an investment of \$10,000,000, it is said. The site faces Bay Harbor and is adjacent to the large plant of the St. Andrew's Bay Lumber Company. Construction is expected to start at once on a two-machine unit to be completed within the next year and after that a second two-machine unit will be erected, each machine being capable of turning out 100 tons of kraft paper daily.

A part of the general plant will be a 15,000-kilowatt electric generating plant to furnish power for the mill and to supply a surplus to the Gulf Power Company, which operates in this section. The company will also produce steam for power purposes. The plant is expected to consume 800 cords of pine wood daily and employ 2000 workmen. The project will also involve the construction of between 200 and 300 homes for employees. C. W. Cullen, vice-president of the International Paper Company in charge of Southern operations, is said to be president of the new company, and Major J. T. Friend, superintendent of Southern plants, is a vice-president.

\$60,000,000 Construction Budget for Utilities Company

Oklahoma City, Okla.—The board of directors of the Standard Gas and Electric Company, Chicago, one of the Byllesby interests, has recommended a construction budget of more than \$60,000,000 for 1930, according to Halford Erickson, vice-president in charge of operation, Byllesby Engineering and Management Corporation, Chicago. It is estimated that \$20,342,000 will be expended to complete construction started prior to January 1, 1930, and approximately \$9,712,000 will be expended for extensions to serve new customers. The Oklahoma Gas and Electric Company, Oklahoma City, a subsidiary of the Standard Gas and Electric Company, will build a service station in Oklahoma City and will begin work soon on the construction of a 66-

000 volt distribution power loop around Oklahoma City with necessary switching stations.

BUTTON FACTORY FOR VIRGINIA

Philadelphia Company to Operate Plant at McKenney

McKenney, Va.—Business men of McKenney, in co-operation with the Industrial Department of the Seaboard Air Line Railway and the Petersburg Chamber of Commerce have concluded negotiations with the North American Button Manufacturing Company, Inc., Philadelphia, Pa., for establishing a button factory here, on which work is expected to be started at once. A brick building of 10,000 square feet of floor space will be erected by the community, with C. G. Zehemer, C. W. Doyle and C. F. Baskerville handling details. It will be leased to the company at a fixed rental for a period of years. The initial unit will employ from 50 to 60 people, but if present plans materialize the entire equipment of the Philadelphia plant will be moved to McKenney, necessitating the construction of another unit and increasing the number of operatives to about 150. Negotiations for locating the plant were conducted by a committee headed by G. F. Holt. Vegetable ivory from Central and South America is the raw material used in the manufacture of the buttons and consideration is being given to getting shipments through the port of Hampton Roads.

March Cement Production and Shipments

American portland cement mills show some improvement in the ratio of operations to capacity, states the Bureau of Mines.

During March, 11,225,000 barrels were produced, 8,846,000 barrels were shipped, and stocks on hand at the end of the month were 30,563,000 barrels. Production was 12.6 per cent more and shipments 12.5 per cent less than March, 1929. Stocks at the mills were 2.8 per cent more than a year ago.

Teachers College Building

Harrisonburg, Va.—Plans have been approved by the State Board of Education, Richmond, for a new administration building to complete a quadrangle at the State Teachers College here. Bids for the structure will be opened April 23, according to Charles M. Robinson, architect, Richmond. In addition to office space, the building will provide for classrooms and an auditorium to seat 1500.

MISSISSIPPI HIGHWAY BILL BECOMES LAW

Meets Requirements Federal-Aid Provisions

[Telegram to Manufacturers Record.]

Jackson, Miss., April 14.

The Highway Bill, which was passed by the Mississippi Legislature, became a law today without the governor's signature. This bill, prepared by the Legislative Highway Committee of the House of Representatives, provides for an elective commission of three members with a director appointed by them in the set-up for the bill. The director will be a full time highway expert who will be executive head of the department and will be given wide discretion and power.

Fixed by the new law is a primary system composed of 4000 miles of highways. To the Federal Aid system, which was designed in the bill as a basis, will be added between 400 and 500 miles of roads to form the primary system. This system, to be constructed and maintained at the expense of the State, will have first call upon the highway funds available and will reach every point of importance in the State. A secondary system is provided for and is to be composed of all roads under maintenance which are not included in the primary system. The limit of this secondary system is set at 2000 miles. These roads are to be maintained at the expense of the State after they are taken into the system, but the roads must be brought up to certain specifications before such maintenance. Improvement of these highways to hard surface will be at the joint expense of the State and of the county.

The bill meets all the requirements of the Federal Government and gives the highway department all the powers considered necessary for construction, reconstruction and maintenance of a modern highway system, and the control and regulation of traffic. Revenue for highway purposes is not provided for by the bill itself, but funds will be made available by a change in the existing motor vehicle law. The recommendation of the Legislative Committee is that the roads be built on a pay-as-you-go basis through an increase in the gasoline and privilege taxes. The program suggested will provide \$80,000,000 in a period of ten years, or sufficient revenue to hard-surface the primary system in seven or eight years.

(Mrs.) ELLEN S. WOODWARD,
Secretary,
Mississippi State Board
of Development.



deLavaud Pipe line coming up out of Rattlesnake Creek Valley, Wyo.

No going is too tough for this sturdy, flexible deLavaud Pipe

When the trench climbs suddenly up a steep grade, as shown above, or curves abruptly to right or left, those are times when you will be grateful for the flexibility of deLavaud Pipe. When heavy rock contests every yard of the way and blasting is the order, then again you will be thankful for the lightness and the ease of installation and the remarkable strength of deLavaud Pipe.

Why is deLavaud Pipe strong and flexible? The answer to this question is found in the fine-grained structure of the metal, which in turn is due to the unique patented deLavaud process of manufacture.



deLavaud Pipe is centrifugally cast in a water-cooled metal mold. The action of this mold brings about the finely divided condition of the iron. All coarse particles are broken up and evenly distributed. *Controlled annealing* further improves the quality of deLavaud pipe metal. *In addition to making deLavaud pipe in accordance with U. S. government specifications, we are also furnishing this product in the various thicknesses and weights shown in the specifications of the American Water Works Association and the American Gas Association. Write for complete information.*

United States Pipe and Foundry Co., Burlington, N.J.

Sales Offices:
New York

Philadelphia
Pittsburgh

Cleveland
Buffalo
Chicago

Our pipe bears the "Q-Check" trademark of The Cast Iron Pipe Research Association

Dallas
Birmingham
Kansas City

Minneapolis
Seattle

San Francisco
Los Angeles

FINANCIAL NEWS

Bond Issues Proposed

Ark., Fayetteville — Airport—City, T. S. Tribble, Mayor, votes May 20 on \$20,000 bonds; lately noted to vote May 8.

Fla., Apalachicola—Franklin County Bd. of Public Instruction, A. A. Core, Supt., rejected bids for \$75,000, 6%, Special Tax School Dist. No. 1 bonds. Lately noted bids April 7.

Fla., Daytona Beach—City Comsn. authorized issuance of \$300,000, 6% bonds to fund outstanding expenditures of 1929.

La., Clinton—East Feliciana Parish School Bd., P. H. Dupuy, Supt., rejected bids for \$40,000, not exceeding 6% Jackson School Dist. No. 2 bonds.

La., Hosston—Caddo Parish Bd., Shreveport, receives bids May 7 for \$100,000 bonds.

La., Mount Hermon—Washington Parish School Bd., Franklinton, called election for May 20 on \$20,000 bonds.

La., New Orleans—Bd. of Liquidation, City Debt., Bernard C. Shields, Sec., receives bids April 23 for \$887,000, 4½%, \$1,000 denom. serial gold bonds.

La., Rayville—Courthouse—Richland Parish Police Jury, J. C. Salmon, Clk., considering \$400,000 bond election.

La., Springfield—Livingston Parish School Bd., called election for April 22 on \$25,000, School Dist. No. 33 bonds.

Md., Salisbury—Water, Sewer—City, E. J. C. Parsons, Clk., receives bids April 28 for \$25,000 4¼% \$1000 denom. bonds.

Miss., Fayette—Town, E. H. Reber, Clk., receives bids April 23 for \$10,000, not to exceed 5½% Fayette Separate School Dist. bonds.

Miss., Kosciusko — Attala County voted \$250,000 Separate Road Dist. bonds.

Miss., Starkville—Bent No. 5, Oktibbeha County, reported, canceled \$35,000 bond election.

Miss., Verona—Verona Consolidated School Dist. voted \$20,000 bonds.

Miss., Vicksburg — Courthouse — Warren County defeated \$75,000 annex bonds.

Mo., Rich Hill—Paving—City votes April 29 on \$35,000 bonds.

N. C., Charlotte—Mecklenburg County Commrs., F. M. Gresham, Clk., receive bids April 21 for \$1,275,000, \$1,000 denom. not to exceed 4¼% bonds; \$1,200,000, courthouse and jail; \$75,000, school.

N. C., Lexington—School—Davidson County Commrs. receive bids April 28 for \$115,500 bonds.

N. C., Madison—Madison School Dist. voted \$90,000 bonds; address Prof. J. T. Laster, Madison, or Bruce Craven, Atty., Trinity.

N. C., Sanford — Hospital—Lee County voted \$82,500 bonds.

Okla., Chickasha—Water—City, J. L. Larson, Mayor, defeated \$285,000 bonds.

Okla., Claremore—Water—City, J. M. York, Clk., receives bids April 21 for \$233,000, \$1,000 denom. not to exceed 6% bonds.

Okla., Lawton—City, Todd Sanders, Clk., receives bids April 29 for \$750,000 not to ex-

ceed 6% bonds; \$600,000, water; \$100,000, fire station and equipment; \$50,000, storm sewer.

Okla., Nichols Hill, Oklahoma City—City votes April 23 on \$575,000 bonds: \$125,000, storm sewers; \$150,000, sanitary sewers; \$250,000, water; \$50,000, parks; S. Chester Davis, Pres., Bd. of Trustees.

Okla., Sulphur — City, Blanche G. Knox, Clk., advises no definite action has been taken as yet regarding \$25,000 bond election for airport, fair grounds, paving, athletic field, water extension.

Okla., Sayre—Library—City defeated \$28,500 bonds.

S. C., Columbia—Street—City, G. F. Cooper, Clk.-Treas., receives bids April 16 for \$72,000 \$1000 denom. not to exceed 5½%.

S. C., Georgetown — Georgetown County Commrs., W. A. Campbell, Clk., plan receiving bids for not over \$40,000 highway, funding and school dist. bonds.

S. C., Greenville—Greenville County votes August 26 on bonds to purchase Chamber of Commerce building.

S. C., Hampton—Bd. of Trustees, J. H. Lightsey, Sec., receives bids April 19 for \$10,000, not to exceed 6% bonds of Brunson School Dist. No. 14, Hickory School Dist. No. 1, and Dry Swamp School Dist. No. 22.

S. C., Jonesville—Trustees of Jonesville School Dist. No. 12, of Union County, C. A. Littlejohn, Sec., receive bids April 25 for \$45,000 \$1000 denom. not to exceed 6% bonds.

Tenn., Blountville—School—Sullivan County Court approved issuance of \$350,000 bonds; \$100,000, when Bristol erects high school plant, and \$35,000 immediately for school in Horse Creek section.

Tenn., Huntingdon—Road—Carroll County Court called election for May 8 on \$350,000 bonds.

Tenn., Knoxville — Park—City Council, James A. Trent, Mayor, authorized issuance of \$100,000 park purchase bonds.

Tenn., Sparta—Sewer—City votes April 19 on \$75,000, not to exceed 5½%, \$1,000 denom. bonds.

Tenn., Tazewell — Courthouse, Jail—Clatsop County, J. W. Rose, Clk., probably call election in August on \$150,000 bonds.

Tex., Beaumont—Road—Jefferson County, B. B. Johnson, County Judge, considering \$1,689,500 bond issue.

Tex., Beaumont—City, Paul H. Millard, Mgr., rejected bids for \$1,589,000 improvement bonds; lately noted bids opened April 8.

Tex., Big Spring—City, V. R. Smitham, Mgr., receives bids April 22 for \$265,000, 5% bonds; \$130,000, sewer; \$115,000, water; \$20,000, street.

Tex., Bryan—Bd. of Education plans \$100,000 bond election in May.

Tex., Columbus—Road—Colorado County votes April 26 on \$500,000 Road Dist. No. 2 bonds.

Tex., Dalhart—Howard A. Finch, Supt. Dalhart Public Schools, called election for May 3 on \$80,000 bonds.

Tex., Bonds—Road—Jackson County Com-

mrs. Court probably call election on \$1,750,000 bonds.

Tex., Lamesa—Road—Dawson County, defeated \$600,000 bonds.

Tex., Liberty—Road—Liberty County, C. R. Wilson, County Judge, rejected bids for \$500,000, Series A, 5% bonds.

Tex., Mercedes—City votes April 22 on \$250,000 bonds; Fred Johnston, Sec., Bd. of Education.

Tex., Quanah—Bd. of Education, Chas. M. Christle, Sec., receives bids April 21 for \$120,000, \$1,000 denom.

5% Quanah School Dist. bonds.

Tex., Quanah—Quanah Independent School Dist. voted bonds.

Tex., San Benito—San Benito School Dist. voted \$320,000 bonds.

Tex., Stinnett—Road—Hutchinson County, G. P. Cain, County Auditor, receives bids May 5 for \$150,000, 5%, \$1,000 denom. bonds.

Tex., Yorktown—City votes April 26 on \$79,000, 5½% warrant funding bonds.

Tex., Waco—City, E. E. McAdams, Mgr., receives bids May 6 for \$370,000, 4¼ or 4¾% bonds; \$70,000, fire station; \$100,000 school; \$100,000, drainage; \$100,000, street.

Va., Luray—Town probably vote May 15 on \$164,500 bonds. \$52,500, water supply and fire protection; \$80,000, sewer; \$26,000, bridge.

Va., Marion—Jail—Smyth County Bd. of Supvrs., H. L. Kent, Clk., receives bids April 21 for \$28,000, 6% bonds.

3-20

Va., Richmond—City Council, R. Keith Compton, Dir. of Public Works, approved \$2,153,000 bond issue, including \$685,000 for gas and water plant improvements and extensions, schools, street improvements, and \$1,450,000 previously authorized.

West Virginia—State Legislature, Charleston, authorized sale of remaining \$15,000,000 of 1928 bonds; Wm. G. Conley, Governor, probably offer for sale \$5,000,000 of bonds early in June; remaining \$10,000,000 to be offered before Jan. 1, 1931.

Bond Issues Sold

Ala., Tuscaloosa—Road—Tuscaloosa County Bd. of Revenue, Wm. Griffith, Clk., sold \$200,000, 5% bonds, jointly, to Caldwell & Co., Nashville, and Ward, Sterne & Co., Birmingham, at \$6,000 premium.

Georgia—State of Georgia sold \$2,500,000 tax anticipation notes, at 100.002, to Guaranty Co., New York; W. O. Gay & Co., Boston, and Robinson-Humphrey Co., Atlanta.

Ky., Ashland—Bd. of Education, J. W. Henderson, Jr., Sec.-Mgr., sold \$100,000, 4¼% bonds to Assel, Goetz & Moerlein, Cincinnati, at par, accrued interest and \$611 premium.

Ky., Ashland—Sewer—City, H. C. Carroll, Clk., sold \$150,000, 4¼% bonds to Caldwell & Co., Nashville, at \$4,170 premium.

La., Baton Rouge—East Baton Rouge Parish School Bd. sold \$40,000, 5½% School Dist. No. 10 bonds to Hibernia Securities Co.

(Continued on page 96)

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FINANCIAL NEWS

(Continued from page 94)

Securities Co., New Orleans, at \$80 premium. 3-13

La., Gretna—Water—Caldwell & Co., Nashville, reported, purchased \$1,250,000, West Bank Water Dist. bonds. 3-13

Mo., Clayton—St. Louis County sold \$2,500,000 4½% securities to syndicate managed by Continental Illinois Co., Chicago, at 101-753, for \$2,000,000 road issue, and 101-8563 for \$500,000 hospital issue; Walter E. Miller, Clk. 3-13

N. C., Greenville—Road—Pitt County Commrs., C. C. Coppedge, County Auditor, sold \$450,000, refunding bonds to First Detroit Co., Detroit, Boatmens National Co., St. Louis, and First Wisconsin Co., Milwaukee, at \$113 premium; \$160,000, 4½%; \$290,000, 4½%. 3-27

N. C., Oxford—Water—Town Commrs., P. Stradley, Clk., sold \$40,000, 5½% bonds to Hanchett Bond Co., Chicago, at \$40,306. 4-3

Okla., Cyril—Water—City sold \$16,000, 6% bonds to Calvert & Canfield, Oklahoma City, at par. 3-27

Okla., Norman—Norman School Dist. sold \$95,000, \$1,000 denom. bonds to C. Edgar Honnold, Oklahoma City, at par and accrued interest; \$75,000, 5%; \$20,000, 4½%; W. L. Gibbs, Pres. School Bd. 3-27

S. C., Orangeburg—Bd. of Trustees Orangeburg County School Dist. No. 26, W. A. Livingston, Chmn., sold \$167,000, 5%, \$1,000 denom. bonds to Robinson-Humphrey Co., Atlanta, and First Detroit Co., Detroit, at \$4,300 premium. 3-27

S. C., Pickens—Pickens County Commrs., J. T. McKinney, Supvr., sold \$94,000, reimbursement bonds to South Carolina National Bank, of Columbia. 3-13

Tenn., Knoxville—City, James A. Trent, Mayor, sold \$200,000, 4½% permanent improvement bonds to Caldwell & Co., Nashville, at \$560.50 premium. 3-13

Tex., El Paso—Improvement—City, R. E. Thomason, Mayor, sold \$1,362,000, 4½% bonds at par, accrued interest and \$19,994 premium, to syndicate composed of Lehman Brothers, R. W. Pressprich & Co., both New York; E. H. Rollins & Sons, Boston; Bosworth, Chanute, Loughbridge & Co., Denver; B. F. Dittmar Co., San Antonio, Dallas Union Trust Co., Dallas. 3-13

Tex., Jasper—City sold \$250,000, 5% bonds to Commercial Trust Co., Kansas City, at par; \$110,000 water; \$65,000, sanitary system; \$75,000, paving. 3-13

Building and Loan Associations

La., Bossier City — Bossier Building & Loan Assn., Bossier State Bank Bldg., capital \$1,000,000, organized; Jack P. Fullilove, Pres.; J. M. Emmons, Sec.-Treas.-Cashier. 4-3

Tex., Amarillo—Reliance Building & Loan Co., of Dallas, with \$5,000,000 capital, opened branch at Amarillo, with G. B. Pierce, Local Mgr. 4-3

New Financial Corporations

N. C., Hendersonville—Southeastern Service Corporation, organized for servicing and re-financing loans made by Guaranty Title & Trust Corp., Norfolk, Va., on properties in North Carolina, with branch office in Norfolk, Va.; Edward W. Wolcott, Vice President, Seaboard Natl. Bank Bldg., Norfolk. 4-3

N. C., St. Pauls—Bank of St. Pauls, A. R. McEachern, Pres., J. C. Lentz, Cashier, reopened under same management. 4-3

N. C., Winston-Salem—Investment Builders Co., capital \$100,000, chartered; Linville K. Martin, Wachovia Bank Bldg. 4-3

Okla., Oilton—P. L. Trullitt, of Wetumka, was granted charter for state bank in Oilton, with \$15,000 capital. 4-3

Tenn., Chattanooga — Hamilton National Associates, Inc., capital \$20,000,000, organized; T. R. Preston, Pres.; includes following institutions in Tennessee and Georgia: Hamilton National Bank and Hamilton Securities, both Chattanooga; First National Bank, Cartersville, Ga.; Calhoun National Bank, Calhoun, Ga.; Bank of La Fayette, La Fayette, Ga.; Bank of Chickamauga, Chickamauga, Ga.; Unaka and City National Bank, Johnson City, Tenn.; First National Bank, and South Pittsburg Savings Bank, both South Pittsburg, Tenn.; First National Banks at Lenoir City, Harriman and Loudon, Tenn.; City National Bank, and Morristown Trust Co., both Morristown, Tenn.; First National Bank, Onelda, Tenn.; Bank of Spring City, Spring City, Tenn.; Highland

others which are expected to join within Trust & Savings Bank, Chattanooga, and 4 next few weeks will give 21 banks in group with total resources over \$60,000,000; temporary board includes Newell Sanders, John Stagmaler, Alexander W. Chambliss, A. A. Cook, T. R. and C. M. Preston, F. L. Underwood, Felix G. Miller; plans opening about April 20 in Hamilton National Bank Bldg. 2-20

Tex., Galveston—Hutchings-Sealy National Bank, formed by merger of South Texas National Bank and Hutchings, Sealy & Co., opened April 7; at same time Sealy Hutchings opened private banking business under name of Hutchings & Co., unincorporated; will occupy former quarters of Hutchings, Sealy & Co.; Sealy Hutchings also is president of Hutchings-Sealy National Bank; George Sealy, Chmn. of Bd. of Directors. 3-20

Tex., Jefferson—Jack Adams, of Jefferson Bank & Trust Co., and H. A. Spellings of Rogers National Bank, interested in organizing bank with \$25,000 capital, to take over accounts of Commercial National Bank, which closed Feb. 8; will occupy former building of Commercial National Bank. 3-20

Board of Directors of Fourth and First Banks, Inc., James E. Caldwell, Pres., Nashville, Tenn., plans acquiring control of Union and Planters Bank & Trust Co., and Manhattan Savings Bank & Trust Co., both Memphis, by acquiring 51 per cent of capital stock of both banks. 3-20

Midwest Savings & Loan Assn., C. C. Crossman, 7708 Forsyth St., St. Louis, Mo., increased capital \$6,000,000 to \$8,000,000. 3-20

North Carolina Bank & Trust Co., W. S. Ryland, Pres., Greensboro, N. C., purchased control of Farmers Banking & Trust Co., Charles A. Johnson, Pres., and Edgecombe National Bank, W. G. Clark, Pres., both Tarboro, N. C., combined resources of 2 banks about \$1,500,000; after consolidation Tarboro unit will operate as independent unit; increased resources of North Carolina Bank & Trust Co. to about \$41,000,000. 3-20

Peoples State Bank of South Carolina, W. H. Cary, V.-P., Columbia, S. C., plans opening bank at McCall, S. C., about May 1 in former Bank of McCall building. 3-20

Tennessee Valley Bank of Decatur, Clyde Hendrix, Pres., Decatur, Ala., plans increasing capital \$250,000 to \$500,000. 3-20

Financial Notes

Norfolk and Western Report.

In addition to heavy expenditures for new line construction, improvements and betterments of a miscellaneous character, the Norfolk & Western Railway Company expended \$11,376,020 for equipment in 1929, according to its annual report. Total operating revenue amounted to \$117,631,751, as against \$106,947,111 for 1928, the ratio of operating expenses to operating revenue being 56.15 per cent as compared with 62.20 per cent for the previous year. Net operating revenue amounted to \$41,786,461 for 1929. Revenue derived from freight amounted to \$108,351,498 in 1929, an increase of nearly \$11,000,000 as compared with the previous year, while the revenue derived from passenger traffic dropped \$615,905 from the 1928 total of \$5,726,833. 3-20

\$750,000 Bonds Offered

Lawton, Okla.—The mayor and city council of Lawton will receive bids until April 29 for the purchase of three bond issues aggregating \$750,000, to bear an interest rate not exceeding 6 per cent. An issue of \$600,000 water works bonds will mature from 1935 to 1955, inclusive, while an issue of \$100,000 fire station and equipment bonds and an issue of \$50,000 storm sewer bonds will mature from 1936 to 1955, inclusive. Todd Sanders is the city clerk. 3-20

\$2,500,000 Georgia Notes Sold

Atlanta, Ga.—Anticipation notes in the sum of \$2,500,000 have been sold by the State of Georgia to the Guaranty Company of New York, W. O. Gay & Company, Boston, and the Robinson-Humphrey Company, Atlanta, at a price of 100.002, the equivalent of a 4.49 per cent basis. 3-20

\$1,362,000 El Paso Bonds Sold

El Paso, Tex.—Improvement bonds in the amount of \$1,362,000 have been sold by the City of El Paso to a syndicate comprising Lehman Brothers and Pressprich & Company, New York; E. H. Rollins & Sons, Boston, Mass., and Bosworth, Chanute, Loughbridge & Company, Denver, Col., the purchase price being 101.468. 3-20

\$700,000 Utilities Bonds Offered

Fayetteville, Ark. — The Arkansas Western Gas Company, of this city, is offering \$700,000 first mortgage 7 per cent sinking fund gold bonds through A. M. Lamport & Company, Inc., New York, to reimburse the company in part for expenditures for a 112-mile gas line system in the northwestern section of the state. Officers of the company include T. F. Murchison, president; C. W. Murchison, Walter Reed, Wofford Cain, Edgar T. Walters and Rose Byron, vice-presidents; Kenneth Murchison, vice-president and treasurer; R. H. Krammes, secretary; E. A. Peck, assistant secretary, and R. H. Inglefield, assistant secretary and assistant treasurer. The management of the company is in the hands of the Southern Union Gas Company, Dallas, Tex. 3-20

New Officers for Commonwealth and Southern

Birmingham, Ala.—New officers of the Commonwealth & Southern Corporation, New York, identified with large Southern utilities corporations, including the Alabama Power Company of this city, the Georgia Power Company, Atlanta, and others, have recently been selected, according to Thomas W. Martin, president. E. A. Yates, vice-president and general manager of the Alabama Power Company, becomes executive head of the engineering and construction work of the Commonwealth and Southern, with offices in New York; O. G. Thurlow, chief engineer of the Alabama Power Company, will be vice-president of the new company in charge of activities in the South, and A. C. Polk, president of the Dixie Construction Company, will be vice-president, with headquarters in New York. 3-20

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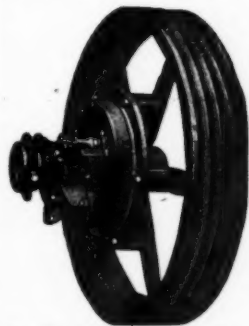
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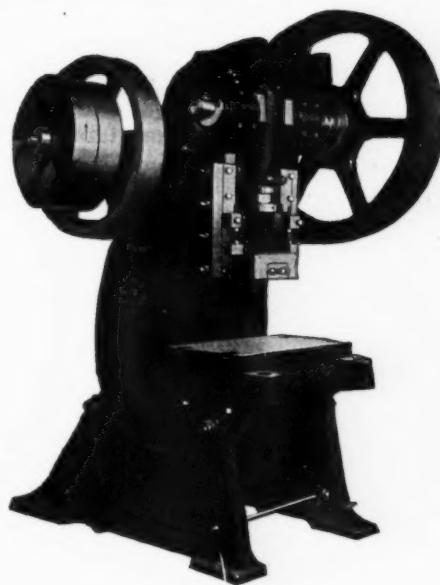
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Completing Natural Gas Line

Oklahoma City, Okla.—The Indian Territory Illuminating Oil Company, of this city, is expected to complete by June 1 an important link in the natural gas distribution system of the Cities Service Company, New York, its parent organization, an enterprise of H. L. Doherty & Company, New York. The new link is of 20-inch pipe and will connect the mid-continent properties of the Doherty company with those of the Indian Territory Illuminating Oil Company in the Oklahoma City field. It will have a daily capacity of 100,000,000 cubic feet and will make available to the Cities Service gas system its entire gas resources in this field, which approximate 600,000,000 cubic feet daily, open flow, from wells already completed.

The Indian Territory Illuminating Oil Company is said to control 9600 acres and a royalty interest on 3000 acres of the oil and gas lands in the field.

\$900,000 Buildings for School of Religion

Norman, Okla.—Plans are being developed by the Oklahoma School of Religion, E. Nicholas Comfort, Director, for financing and building four structures on a 4-acre tract adjoining the campus of the University of Oklahoma. The proposed buildings include a \$300,000 chapel, \$250,000 administration building, \$100,000 library and a \$150,000 conference hall. Harold Gimeno, Norman, is the architect.

Plan \$300,000 Stadium

University, Va.—Plans have been prepared for constructing a \$300,000 stadium for the University of Virginia, according to an announcement by President A. E. Alderman. Funds for the structure, which will be located at the foot of Mount Jefferson, have been donated by Frederic William Scott, Richmond, rector of the University.

Clayton, Mo.—Bonds in the amount of \$2,500,000, bearing a 4½ per cent interest rate, have been sold by St. Louis County to a syndicate headed by the Continental Illinois Company, Chicago, which submitted tenders of 101,753 for \$2,000,000 road bonds and 101,8563 for \$500,000 hospital bonds.



PROPOSALS

BOND ISSUES

BUILDINGS

PAVING

GOOD ROADS



Bids close April 23, 1930.

TREASURY DEPARTMENT, office of the Supervising Architect, Washington, D. C., March 22, 1930.—Invitation is withdrawn for bids to be opened in this office at 3 P. M. April 23, 1930, for the construction (except elevator and lift) of the U. S. Post Office and Court House at Lynchburg, Va., including demolition and clearing site. JAS. A. WETMORE, Acting Supervising Architect.

Bids close April 30, 1930.

TREASURY DEPARTMENT, office of the Supervising Architect, Washington, D. C., April 8, 1930.—SEALED PROPOSALS will be opened in this office at 3 P. M., April 30, 1930, for certain new plumbing fixtures and miscellaneous repairs to plumbing and heating in the U. S. Post Office at Paris, Tenn. Drawings and specifications may be obtained from the custodian at the U. S. Post Office at Paris, Tenn., or at this office, in the discretion of the Supervising Architect. JAS. A. WETMORE, Acting Supervising Architect.

Bids close April 29, 1930.

\$600,000 6% Waterworks Bonds

Lawton, Okla.

In accordance with the provisions of Chapter 22 of the Session Laws of Oklahoma, 1927, notice is hereby given that the Mayor and Council of the City of Lawton, State of Oklahoma, will receive bids on April 29, 1930, at five (5) o'clock P. M. at the City of Lawton, Oklahoma, in the City Hall in said city, for the sale of the following described bonds:

\$600,000.00 Water Works Bonds, maturing \$30,000.00 in each of the years 1935 and 1955, both inclusive, and to bear interest not to exceed six per cent (6%) per annum.

Said bonds shall be sold to the bidder bidding the lowest rate of interest such bonds shall bear, and agreeing to pay par and accrued interest for the bonds, \$200,000.00 of said bonds to be delivered upon the approval by the Attorney General as required by law and \$100,000.00 within ninety (90) days from the date of said approval by the Attorney General, and the remainder of \$300,000.00 within one year from the date of said approval by the Attorney General. Each bidder shall submit with each bid a sum in cash or its equivalent equal to two per cent (2%) of the amount of each bid.

The Mayor and Council reserve the right to reject any and all bids.

Witness my official seal this 9th day of April, 1930.

(SEAL)

TODD SANDERS,
City Clerk.

GENERAL INFORMATION

About Proposal Advertising in Manufacturers Record

PUBLICATION DAY: Thursday.

FORMS CLOSE: 10 A. M. Tuesday.

When too late to send copy by regular mail to reach us by 10 A. M. Tuesday, forward by night letter or air mail when possible.

THE DAILY CONSTRUCTION BULLETIN OF THE MANUFACTURERS RECORD:

Published every business day, gives information about the industrial, commercial and financial activities of the South and Southwest.

The Daily Construction Bulletin can be used to advantage when copy cannot reach us in time for publication in the Manufacturers Record before bids are to be opened or when daily insertions are necessary to meet legal requirements.

The rate is the same for both publications—35 cents a line each insertion.

Bids close May 2, 1930.

TREASURY DEPARTMENT, office of the Supervising Architect, Washington, D. C., April 7, 1930.—SEALED PROPOSALS will be opened in this office at 3 P. M. May 2, 1930, for furnishing all labor and materials necessary for installing one electric passenger elevator and one electric dumbwaiter in the U. S. M. H. at Galveston, Texas. All prospective bidders are hereby notified that any bid submitted in response to this advertisement must be accompanied by a statement of facts in detail of the business and technical organization of the bidder available for the contemplated work, including financial resources and building experience, etc. The United States expressly reserves the right to reject any bid in which the facts as to business and technical organization, financial resources or building experience, compared with the project bid upon, justify such rejection. The successful bidder will be required to furnish a performance bond of 50% of the contract price. Drawings and specifications may be obtained from this office. JAS. A. WETMORE, Acting Supervising Architect.

Bids close April 29, 1930.

\$100,000 6% Fire Station and Equipment Bonds

Lawton, Okla.

In accordance with the provisions of Chapter 22 of the Session Laws of Oklahoma, 1927, notice is hereby given that the Mayor and Council of the City of Lawton, State of Oklahoma, will receive bids on April 29, 1930, at 5 o'clock P. M. at the City of Lawton, Oklahoma, in the City Hall in said city for the sale of the following described bonds:

\$100,000.00 Fire Station and Equipment Bonds, maturing \$50,000.00 in each of the years 1936 and 1955, both inclusive, and to bear interest not to exceed six per cent (6%) per annum.

Said bonds shall be sold to the bidder bidding the lowest rate of interest such bonds shall bear, and agreeing to pay par and accrued interest for the bonds. Each bidder shall submit with each bid a sum in cash or its equivalent equal to two (2) per cent of the amount of each bid.

The Mayor and Council reserve the right to reject any and all bids.

Witness my official seal this 9th day of April, 1930.

(SEAL)

TODD SANDERS,
City Clerk.

Bids close April 29, 1930.

\$50,000 6% Storm Sewer Bonds

Lawton, Okla.

In accordance with the provisions of Chapter 22 of the Session Laws of Oklahoma, 1927, notice is hereby given that the Mayor and Council of the City of Lawton, State of Oklahoma, will receive bids on April 29, 1930, at five (5) o'clock P. M. in the City of Lawton, Oklahoma, in the City Hall in said city, for the sale of the following described bonds:

\$50,000.00 Storm Sewer Bonds, maturing \$25,000.00 in each of the years 1936 to 1955, both inclusive, and to bear interest not to exceed six per cent (6%) per annum.

Said bonds shall be sold to the bidder bidding the lowest rate of interest such bonds shall bear, and agreeing to pay par and accrued interest for the bonds. Each bidder shall submit with each bid a sum in cash or its equivalent equal to two per cent (2%) of the amount of each bid.

The Mayor and Council reserve the right to reject any and all bids.

Witness my official seal this 9th day of April, 1930.

(SEAL)

TODD SANDERS,
City Clerk.

Bids close April 22, 1930.

Maryland Highway WorkDEPARTMENT OF PUBLIC WORKS
STATE ROADS COMMISSION
STATE OF MARYLAND

NOTICE TO CONTRACTORS

Baltimore, Md.

SEALED PROPOSALS for building eight sections of State Highway, as follows:
 Allegany County, Contract No. A-66-611—One section of State Highway, along the Legislative Road from Moscow to Barton, a distance of 1.66 miles (concrete shoulders).

Allegany County, Contract No. A-64-62, Federal Aid Project 207—One section of State Highway from McCool to Westernport, a distance of 4.7 miles (concrete).
 Charles County, Contract No. Ch-79-82—One section of State Highway along Mason Spring-Pisgah Road from the end of Contract No. Ch-66 to Pisgah, a distance of 1.0 mile (gravel).

Charles County, Contract No. Ch-80-811—One section of State Highway from Mat-tawoman to Waldorf, a distance of 2.9 miles (concrete shoulders).

Kent County, Contract No. K-46-25—One section of State Highway from the Betterton-Still Pond Road toward Lloyd Creek, a distance of 0.34 mile (concrete with slag shoulders).

St. Mary's County, Contract No. SM-54-84—One section of State Highway from the Valley Lee Road through Dryden, a distance of 0.5 mile, and from the end of Contract No. SM-37 through St. George's Island, a distance of 0.5 mile, making a total distance of 1.0 mile (gravel).

Worcester County, Contract No. Wo-67-111—One section of State Highway covering the modification of curves at the two railroad crossings on the Berlin-Selbyville road, a distance of 0.41 mile (concrete).

Worcester County, Contract No. Wo-73-14—One section of State Highway along the Pocomoke-Cedar Hall Road from the end of Contract No. Wo-63 toward Cedar Hall, a distance of 0.99 mile (concrete).
 will be received by the State Roads Commission at its offices, Federal Reserve Bank Building, Calvert and Lexington Sts., Baltimore, Maryland, until 12 M. on the 22nd day of April, 1930, at which time and place they will be publicly opened and read.

Bids must be made upon the blank proposal form which, with specifications and plans will be furnished by the Commission upon application and cash payment of \$1.00, as hereafter no charges will be permitted.

No bids will be received unless accompanied by a certified check for the sum of Five Hundred (\$500) Dollars, payable to the State Roads Commission.

The successful bidder will be required to give bond, and comply with the Acts of the General Assembly of Maryland, respecting contracts.

The Commission reserves the right to reject any and all bids.

BY ORDER of the State Roads Commission this 8th day of April, 1930.

G. CLINTON UHL, Chairman.

L. H. STEUART, Secretary.

Bids close April 29, 1930.

Street Paving

Eatonton, Ga., April 10, 1930.

Sealed proposals for paving certain streets in Eatonton, Georgia, will be received by the Board of Council at their office, 2 o'clock P. M. April 29, 1930.

Approximate quantities:

1470 feet of granite curb.
 1610 feet concrete gutter.
 970 feet of 15 and 18 inch pipe.
 4272 square yards of concrete pavement.
 Each bid must be accompanied by a cashier's check for \$1500.00.

A deposit of two dollars will be required for plans and specifications, one dollar of which will be refunded to bona fide bidders upon return of plans.

Plans and specifications may be seen or secured at the office of the City Clerk or the office of the Engineer.

The right is reserved to reject any and all bids.

L. M. PENNINGTON, Mayor.
 J. R. BACHELOR, Clerk.

Bids close April 29, 1930.

Virginia Highway Work

Richmond, Va.

Sealed bids will be received until Tuesday, 10 A. M., April 29, 1930, Office of the Va. Dept. of Highways, Richmond, Va. Rt. 23, Proj. F461B3, 1—105 ft. Steel and 3—40 ft. Concrete, 404.4 cu. yds. A Conc., 66,520 lbs. Reinf. Steel, 118,800 Struct. Steel, Rt. 23, Proj. F461B1, 7—25 ft. Conc. and 4—200 ft. Steel Spans, 1537 cu. yds. A Conc., 175,500 lbs. Reinf. Steel, 1,204,000 Struct. Steel, Rt. 52, Proj. 626D, 106,538 cu. yds. Excav., 31,491 Gravel, 0.6 ml. Rt. 52, Proj. 632A, 94,757 cu. yds. Excav., 31,596 Gravel, 0.7 ml. Rt. 33, Proj. 640A, 25,219 cu. yds. Excav., 83,046 sq. yds. Macadam, 4.7 ml. Details obtainable upon request.

Bids close April 25, 1930.

Street Paving

Houston, Mississippi.

Sealed bids for the construction of Street Paving Improvements at Houston, Mississippi, will be received by the Mayor and Board of Aldermen, at the office of the Town Clerk, until 1:30 P. M., April 25, 1930, at which time and place they will be publicly opened and read.

The work comprises grading, drainage, concrete curb and gutters, and Cement Concrete Paving.

Approximate quantities of principal items:

45,750 Sq. Yds. Concrete Paving.
 34,100 Lin. Ft. Concrete Curb and Gutter.

Plans and specifications may be examined at the office of the Town Clerk, in Houston, Mississippi, or at the office of the Engineers; or a copy may be obtained from the Engineers upon receipt of a deposit of fifteen dollars, of which amount seven and one-half dollars will be refunded when the plans and specifications are returned in good condition.

The right is reserved to reject any or all bids, and to waive informalities.

Each bid must be accompanied by a certified check, drawn on a responsible bank, or trust company, and made payable to the Town of Houston, Mississippi, for a sum not less than 1% of the bid; or a bidder's bond for the same amount by a surety company authorized to do business in the State of Mississippi. The successful bidder will be required to furnish performance bond in the sum of 100% of the contract price and one year maintenance bond. The Contractor will be paid in cash monthly on the basis of 90% of the value of work done and materials furnished. Contract will be awarded to the lowest bidder.

If further information is desired, address the Engineers.

ASHTON TOOMER, Mayor.

R. F. BRAND, Town Clerk.

C. N. Harrub Engineering Co.,
 705 Fourth & First Natl. Bank Bldg.,
 Nashville, Tenn.

Bids close April 29, 1930.

Water Main Construction

Charlotte, N. C.

Sealed proposals will be received by the City Manager of the City of Charlotte, N. C., in the Council Chamber of the City Hall until eleven o'clock A. M. on Tuesday, the Twenty-ninth day of April, 1930, for the construction of a Thirty-inch water main from the Raw Water Reservoir to the City Filtration Plant.

The work will embrace three (3) miles of thirty-inch pipe, with the necessary fittings and valves.

Plans and specifications are on file with the Superintendent of the Water Department and blank forms of proposals, specifications, etc., may be obtained from the Superintendent of the Water Department without charge.

Consideration will be given only to bids of contractors who submit evidence showing that they are licensed under "An Act to Regulate the Practice of General Contracting," ratified by the General Assembly of North Carolina on March 10th, 1925.

Certified check for five (5%) per cent of the amount bid for such items for which a proposal is made must accompany all proposals.

Bids will be opened in the presence of those interested, but the Council reserves the right to reject any or all bids.

By order of the Council.

R. W. RIGSBY,

City Manager.

EDGAR READ,

City Clerk.

Bids close May 2, 1930.

Sewer Construction

Charlottesville, Va.

Sealed proposals for the construction of sanitary sewers and appurtenances will be received by the City of Charlottesville until 2 P. M. on Friday, May 2nd, at the office of the City Manager, H. A. Yancey, at the City Hall.

Each proposal must be accompanied by a certified check in the amount of \$5000.00 on a solvent National Bank, made payable to the City of Charlottesville. Bid bonds will not be received in lieu of the above specified certified check.

As is covered in detail by the specifications the City of Charlottesville will furnish all pipe, manhole castings and flush tanks required for the work at the prices, and under the conditions, stipulated in the specifications, together with certain other minor materials. The contractor is to furnish all other material and labor.

The approximate quantities involved are as below tabulated:

Excavation	53,000 cu. yd.
8-inch sewer line.....	82,000 ft.
10-inch sewer line.....	600 ft.
12-inch sewer line.....	2,000 ft.
15-inch sewer line.....	1,600 ft.
18-inch sewer line.....	3,000 ft.
24-inch sewer line.....	4,000 ft.
Standard manholes	330
Drop Manholes	330
Flush Tank Structures.....	109

In addition to the above quantities there will be required a small amount of Cast Iron pipe and fittings, all of which will be furnished F. O. B. cars by the City of Charlottesville, and is to be hauled and incorporated into the work by the contractor.

The approximate quantities are subdivided by sewer districts.

Plans and specifications are on file at the City Manager's Office and at the office of Lee H. Williamson, Consulting Engineer, City Finance Building, Charlottesville, Virginia. Specifications and bid form will be forwarded upon receipt of application to the City Manager or the Consulting Engineer. Plans may be had from the office of the Consulting Engineer upon payment of \$10.00 and these plans remain the property of the purchaser.

It is the desire of the city to let the entire work to one contractor, but the City of Charlottesville expressly reserves unto itself, through its City Manager, the right to let any or all of the work as appears to the best interests of the city, and further the right to reject any or all bids.

Bond will be required in the full amount of the contracts so awarded.

Payment for the work will be made in cash on the basis of Engineer's monthly estimates from funds resulting from the sale of sewer bonds.

Men will be available at the office of the Consulting Engineer up to and including Thursday, May 1st, to show prospective bidders the location and extent of the work.

H. A. YANCEY,
 City Manager.

Bids close May 8, 1930.

Reservoir

Selma, Ala.

Sealed proposals for furnishing materials and constructing a One Million Gallon Capacity, covered, reinforced concrete reservoir and appurtenances will be received by the Selma Water Works Commission of the City of Selma, Alabama, at the office of the Commission until 2 P. M. Thursday, May 8th, 1930.

Each proposal must be accompanied by a certified check, payable to the Commission, in an amount equal to five (5) per cent of the bid as a guarantee that the contract will be entered into, if awarded. A bond equal to one hundred (100) per cent of the contract price will be required of the successful bidder as surety that he or it will pay for all the materials and labor used in said contract, and for the faithful performance of same.

Plans and specifications are on file at the office of the Selma Water Works Commission at Selma, Alabama, and with Wiedeman and Singleton, Engineers, Atlanta, Ga.

Bidders may obtain copies of the specifications from the Engineers by enclosing certified check for ten (\$10.00) dollars, payable to the Selma Water Works Commission. Blueprints may be had at the cost of printing. If plans and specifications are returned within thirty days after opening bids, the check for ten (\$10.00) dollars will be returned. The Commission reserves the right to reject any or all bids.

ALBERT THALHEIMER, President,
 Selma Water Works Commission.

Bids close April 22, 1930.

Maryland Highway WorkDEPARTMENT OF PUBLIC WORKS
STATE OF MARYLAND
STATE ROADS COMMISSION**NOTICE TO CONTRACTORS**

Baltimore, Md.

SEALED PROPOSALS for building bridges and timber jetties as follows:

Worcester County, Contract No. Wo-79-15—Proposed timber jetties at Ocean City, Maryland. One to be built at North First Street and one to be built at North 14th Street.

Carroll County, Contract No. CI-59-53—Substructure, concrete floor, etc., and approaches required for the proposed grade elimination on the National Pike east of Ridgeville at the Baltimore & Ohio Railroad Company's tracks.

Allegheny County, Contract No. A-67-67—Concrete girder bridge at Corriganville on the road from Cumberland to Mt. Savage, over Jennings Run.

Allegheny County, Contract No. A-73-67—Concrete girder bridge on the road from Lonaconing to Westernport over George's Creek at Moscow Mills.

will be received by the State Roads Commission at its offices, Federal Reserve Bank Building, Calvert and Lexington Streets, Baltimore, Maryland, until 12 M. on the 22nd day of April, 1930, at which time and place they will be publicly opened and read.

Bids must be made upon the blank proposal form which, with specifications and plans, will be furnished by the Commission upon application and cash payment of \$1.00, as hereafter no charges will be permitted.

No bids will be received unless accompanied by a certified check for the sum of Five Hundred (\$500) Dollars, payable to the State Roads Commission.

The successful bidder will be required to give bond and comply with the Acts of the General Assembly of Maryland respecting contracts.

The Commission reserves the right to reject any and all bids.

BY ORDER of the State Roads Commission this 4th day of April, 1930.

G. CLINTON UHL, Chairman.

L. H. STEUART, Secretary.

Bids close April 23, 1930.

Tires and Tubes

Richmond, Va.

Sealed bids will be received noon April 23, 1930, St. Office Bldg., Richmond, Va., for pneumatic balloon, heavy solid tires and tubes, 6 months period, value approximately \$40,000.00. Proposals and details obtainable upon request.

Bids close May 7, 1930.

Power Plant Equipment**RE-ADVERTISEMENT**

Kinston, N. C.

Sealed proposals will be received by the Mayor and Board of Aldermen of the City of Kinston, N. C., until 2.30 P. M., May 7th, 1930, for the furnishing, delivering and/or erection of certain Power Plant Equipment, Material and/or apparatus, enumerated as follows:

One (1) 3500 K.W. at 80% P.F., 4375 K.W. at 100% P.F., Turbo-Generator Unit, with direct connected Exciter, together with all appurtenances and accessories specified.

One (1) Turbo-Generator Air Cooler.

One (1) Surface Condenser for the 3500 K.W. Turbine, complete with one (1) Motor-driven Condensing Water Circulating Pump; duplicate Dry Vacuum Pump; one (1) Motor-driven Hot Well Pump; one (1) Steam Turbine-driven Hot Well Pump; Inter and After Condenser and Appurtenant Equipment; one (1) Automatic Atmospheric Exhaust Relief Valve.

One (1) Turbine Room Crane for partial electrical operation.

One (1) Generator Switchboard Panel with instruments and appurtenant equipment.

One (1) Exciter Switchboard Panel with instruments and appurtenant equipment.

Changes and modifications to present switchboard, etc.

Proposals must be marked "PROPOSALS FOR POWER PLANT EQUIPMENT." All proposals must be made upon blank forms provided in each copy of the Proposal, Contract and Specifications.

Each proposal must be accompanied by a certified check in the amount of five (5) per cent of the amount of the proposal, but in no case for a less amount than Two

Hundred Fifty (\$250.00) Dollars, as evidence of good faith.

Copies of Proposal forms, including Specifications, Form of Contract, etc., may be obtained upon application to the Engineers.

The right is reserved to reject any or all bids or to award contract or contracts which, in the opinion of the Engineers and the Board, appear to be for the best interests of the City of Kinston, N. C.

WILLIAM C. OLSEN, INC.,

Engineers,

Raleigh, North Carolina.

J. C. DAIL, Mayor.

CECIL WOOTEN, Chairman,

Water and Light Committee.

W. B. COLEMAN, City Clerk.

J. E. WEYHER, Superintendent,

Water and Light Department.

Bids close April 23, 1930.

Machinery, Tools, Etc.

DEPARTMENT OF EDUCATION

OFFICE OF THE

BOARD OF SCHOOL COMMISSIONERS

Madison and Lafayette Avenues

Baltimore, April 9, 1930.

Sealed Proposals, in duplicate, addressed to the Board of Awards, will be received at the office of the City Register, City Hall, Baltimore, Md., until 11 O'CLOCK A. M. WEDNESDAY, APRIL 23, 1930, endorsed as follows:

"Proposals for Furnishing Machinery, Tools and other Materials for Sheet Metal, Electric, Wood and Diversified Shops for the Department of Education."

Specifications for the above may be obtained at the office of the Assistant Superintendent in Charge of the Business Division of the Department of Education, 1930 E. 20th Street, Baltimore, Md.

Each bid must be accompanied by a certified check of the bidder for \$50.00, made payable to the Mayor and City Council of Baltimore, and drawn on a clearinghouse bank.

The successful bidder will be required to give bond for the faithful performance of his contract, and in an amount equal to the contract price, and to comply with the City Charter respecting contracts.

The Board of Awards reserves the right to reject any or all bids.

JOSHUA R. JOLLY,
Acting Secretary, Board of
School Commissioners.

CLASSIFIED OPPORTUNITIES

MINERAL AND TIMBER LANDS, WATER POWER, MISCELLANEOUS PROPERTIES

CUBA MINERALS For Sale—Outcroppings—Lead-zinc ten million tons; Manganese seven million tons; 3 rich gold strikes; 900 acres proven oil land at Matanzas. R. M. BURT, Alta Vista Hotel, Miami, Florida.

MICA MINES**MICA MINES FOR SALE**

280 acres of clear greenish mica, finest quality. Priced \$50,000.00. Will ship to manufacturers 30 days after receipt of order in any quantity desired.

L. B. RAINEY, Gadsden, Alabama.

MANGANESE DEPOSIT

MANGANESE—NEAR RAILROAD AND RIVER, IN ROCKINGHAM CO., VA.; 260 ACRES HIGH-GRADE ORE. HAS YIELDED 6000 TONS THE ACRE. ADJACENT LAND ALSO YIELDS ORE. FOR DESCRIPTION AND TERMS WRITE A. L. HARNESBERGER, MT. AIRY, MD.

PHOSPHATE ROCK PROPERTY

PHOSPHATE ROCK PROPERTY in Tennessee For Sale—1500 acres containing approximately 3,000,000 tons brown rock and 3,000,000 tons blue rock; also plant complete for mining, washing, drying and grinding rock; 4000 tons storage shed; plenty water for washing rock. N. & C. & St. Louis R. R. siding. Sold cheap. Care FRED. G. BUSHOLD, Cregg Bldg., Lawrence, Mass.

Rates, Terms and Conditions

RATES: 30 cents a line each insertion. Minimum space accepted, four lines. In estimating the cost allow six or seven words of ordinary length to a line. When the advertisement contains a number of long words proper allowance should be made.

Rates for Special Contract:

100 lines 28c a line

300 lines 26c a line

500 lines or more 25c a line

TERMS: For transient advertising cash with order; check, postoffice or express money order or stamps accepted.

On special contract advertising bills are rendered monthly, covering space used each month, payable within ten days.

CONDITIONS: No patent medicine, oil or mining stock advertisements or questionable or undesirable advertisements will be accepted. The assistance of our readers in excluding undesirable advertisements is requested. No display type used.

MINERAL AND TIMBER LANDS, WATER POWER, MISCELLANEOUS PROPERTIES

FOR SALE—Factory Sites, City Property, Water Frontage, Tracts for Suburban Development. Timber Lands and Colonizing Lands. H. H. Wefel, Jr., Mobile, Alabama.

MINERAL AND TIMBER LANDS, WATER POWER, MISCELLANEOUS PROPERTIES**ROCK ASPHALT PROPERTY**

FOR SALE—Rock-asphalt property, containing both limestone and sandstone rock-asphalts; 4000 acres, with large "going" plant, quarries and railroads. Exceptionally located for distribution in East and South. Material thoroughly tested in highway use. For particulars address No. 8059, care of Manufacturers Record, Baltimore, Md.

TIMBER AND TIMBER LAND

125,000,000 FEET, virgin pines and hardwoods in North Carolina, 100% cruise. Good logging terrain, 3 R. R. outlets, 21,000 acres, \$20 acre, lib. terms. SHOLL, Box 18, Burlington, New Jersey.

BAGNELL DAM DISTRICT, Missouri—2200 acres Virgin Hardwood Timber for sale. This land close to Lake of 125 miles being formed by Power Dam. F. W. C. Bailey, 559 So. Darlington Ave., R. F. D. No. 7, Tulsa, Okla.

900,000,000 FEET tropical fancy hardwoods including about 125,000,000 feet genuine Mahogany (Swietenia) all one tract; average less than \$1.00 per thousand. Economical logging, stable Governmental conditions; equable climate; advantageous rates and shipping facilities to the states. Offered for sale first time. Excellent opportunity for investment or long timber supply. Title perfect. Address, No. 8068 care Manufacturers Record, Baltimore, Md.

FARM, FRUIT AND TRUCK LANDS

FLORIDA

FLORIDA ESTATE—Five thousand acres, timber oranges, road shell, houses, daily mail, hard roads, Saint Johns River landing. Owner JOHN E. HARRIS, Beresford, Florida.

BEAUTIFUL 60-acre water front estate for sale, or will sell stock in syndicate; 50 acres in bearing orange and grapefruit. Fruit will pay for property in from 5 to 8 years.

Beautiful \$30,000.00 residence on property with 1300 feet on water front, 800 feet seawall. This property has its value from the standpoint of a citrus grove, or as an investment for a beautiful water-front development in the near future, as it is in the city limits of Fort Myers. Price \$75,000.00.

The P. John Hart Realty & Investment Corporation,
No. 6 Postoffice Arcade,
Fort Myers, Florida.

MISSISSIPPI

8000 ACRES, cut-over, famous Yazoo, Miss., Delta; 2 mi. sta.; ideal long staple cotton production; hunters' paradise; deer, turkey, fishing. Near proven gas field; \$7.50 acre. Barbour Realty, Vicksburg, Miss.

SOUTH CAROLINA

5,500 ACRES—Highly cultivated S. Carolina farm; iodine district; growing all crops; equipment, stock to settle estate; \$25 acre; terms. Sholl, Southern Dept., Burlington, New Jersey.

TEXAS

TO SETTLE Estate, 159 acres, all prairie, 6 miles from here, 50 cultivated, 5-room house; worth \$30, for \$20 per acre, all cash. W. H. COFFIELD, Bowie, Texas.

FOR SALE—To settle an estate, 1000 acres of good black land improved, well located, clear of debt and in a good state of cultivation. If interested in the black land belt of North Central Texas or choice lands on the plains near Lubbock or Floydada, Texas. Box 494, Gainesville, Texas.

RIO GRANDE VALLEY, TEXAS

300 acres citrus land, located northwest of Mission, where developers are selling same soil for \$1000 to \$1500 per acre; will sell 100 acres for \$80 or all for \$75 per acre; half cash, balance to suit; \$500 to anyone who can show better citrus soil, regardless of price or location. JOHN J. ERICKSON, owner, Box 412, McAllen, Tex.

TEXAS DAIRY RANCH FOR SALE

619-acre Dairy Ranch, 1½ hour drive from Port Houston, paved highway, 275 acres in cultivation, 344 pasture, stock pens, 2 windmills, 250 foot milk barn, storage barn, concrete milk house, light plant, orchard, modern residence. \$55.00 per acre. JOHN HUNT LAND COMPANY, Cleveland, Texas. Phone 92.

THE ENIGMA OF THE AGES

The enigma of the ages is largely solved by the ownership of property, causing contentment, peace and happiness. The pioneer knew this, the frontiersman and the early emigrant. Sam Houston, Kit Carson, Davy Crockett, etc., all had this feeling. "Way out west there's a sweet little nest where we'll wait till the world rolls by." All right, then! I will sell you 160 acres land in the far west for \$2.50 and \$3 an acre, near railroad and town; good terms; 80 acres near Winkler county oil field, \$25 acre; will sell, lease or trade any of the above.

JAMES W. KELLY,
324 North Fourth Street Waco, Texas

VIRGINIA

RIVER FARM FOR SALE OF EXCHANGE—750 acres, brick mansion, two stock barns, several tenant houses, 125 acres rich bottom land 325 acres fine upland, 300 acres timber. Good neighborhood. Low price.
GEO. V. VENABLE & CO., Lynchburg, Va.

FARM, FRUIT AND TRUCK LANDS

VIRGINIA

FOR SALE—Excellent cattle farm or game preserve, 875 acres, 500 open. Fair buildings. Near Washington & Richmond, Va. Good community, convenient, low taxes. \$10. acre cash. Box 441, Marion, N.C.

SOUTHERN HOMES

AIKEN, S. C.

Sale or Rent—Cottage, 12 rooms, 3 baths. Hot water heat, electric lights. Excellent location. Chauffeur's quarters, 2 rooms, 1 bath, 2 car garage.

GEORGE F. ARCHER, Aiken, S. C.

SOUTHERN HOMES

In the best city in the Carolinas, \$10,000 to \$75,000, according to size and location.

F. C. ABBOTT & CO.,
Charlotte, N. C.

32 years in Charlotte Real Estate.

BUSINESS AND INVESTMENT PROPERTIES

GADSDEN, ALABAMA, offers wonderful investment possibilities to the conservative buyer of well-located real estate. Gulf States Steel Co. spending twenty million dollars. Southern plant Goodyear Tire Co.; 20 other textile, cast-iron pipe, woodworking and stove industries. Offers same opportunity Birmingham did twenty years ago. For homes, income, industrial properties or business enterprises write FISHER REALTY COMPANY, GADSDEN, ALABAMA.

BUSINESS OPPORTUNITIES

LONG TERM LOANS, large amounts, made on industrial, mercantile, sawmill properties. THOS. W. GILMER, Attorney, Bay Minette, Alabama.

FOR SALE—To right party half interest in profitable hamper and veneer mill. Located in Florida. Plenty of Timber available. Or will sell outright. Address No. 8081, care Manufacturers Record.

MANUFACTURERS—Write for our FREE Classification Sheets of inventions for sale, covering 135 main subjects, and in one or more of which you will doubtless be interested. ADAM FISHER MFG. CO., 578 Enright, St. Louis, Mo.

WANTED—A MACHINE manufactured that will sell for territory manufacturing and selling right; weight of machine and vital auxiliary equipment about 7 tons, 5 of gray iron castings, none over 300 lbs., and 2 of structural steel, etc. For further details write No. 8069, care Manufacturers Record, Baltimore, Md.

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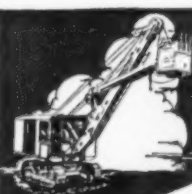
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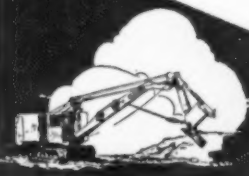
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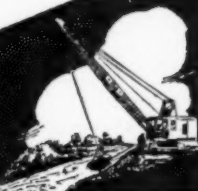
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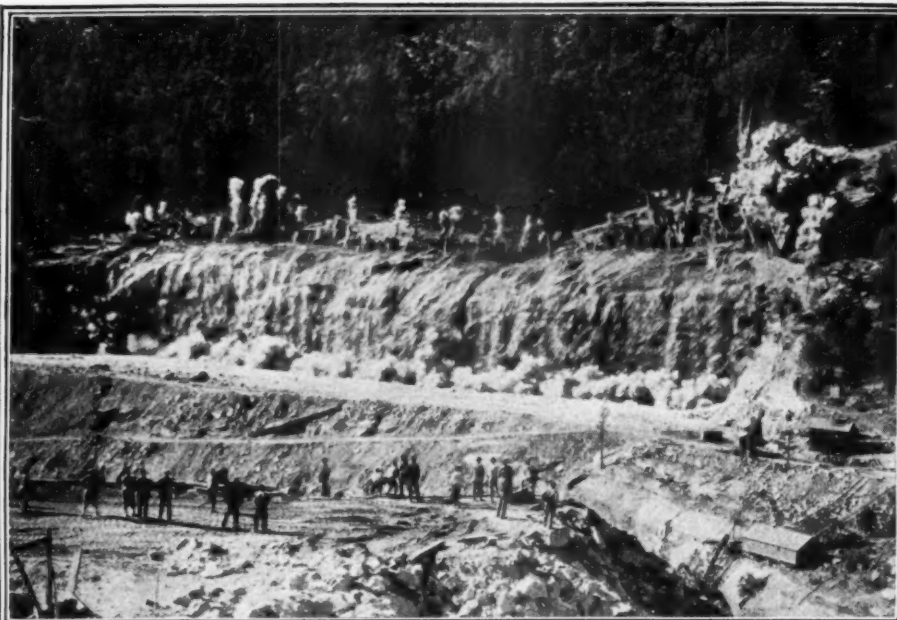
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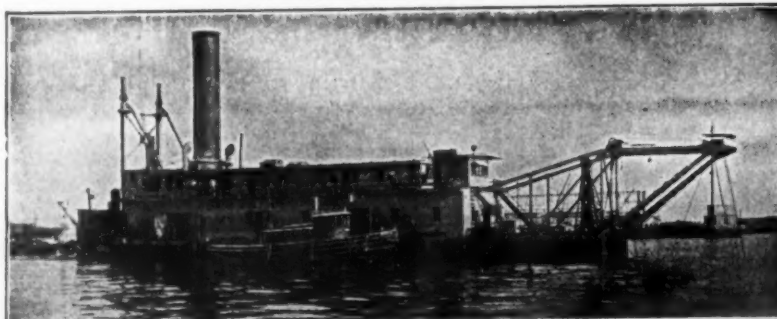
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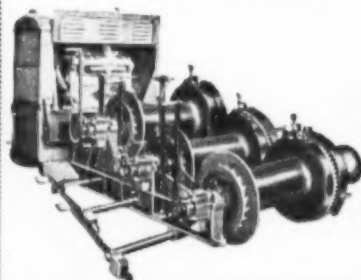
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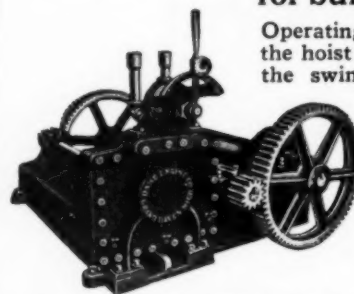
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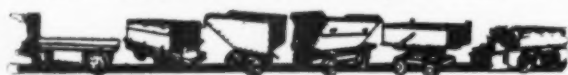
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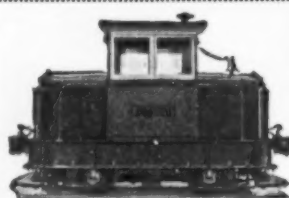
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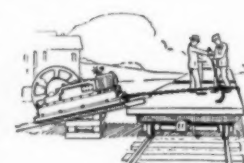


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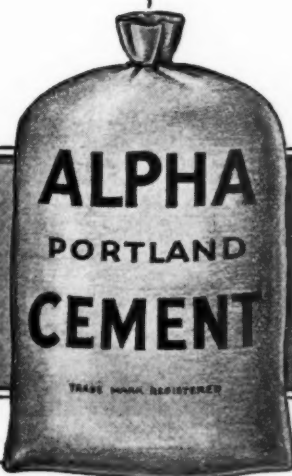
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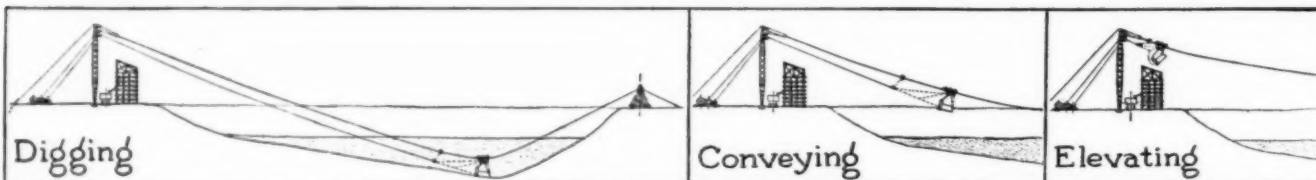
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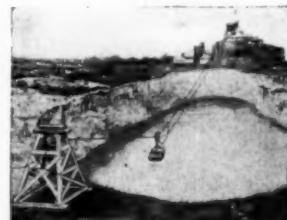
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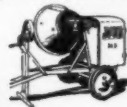
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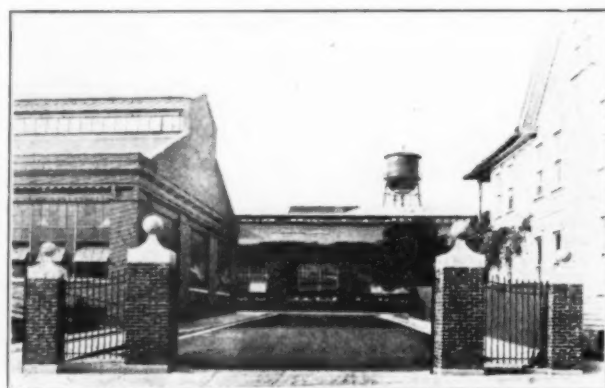
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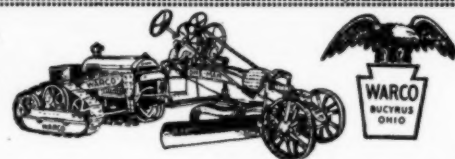
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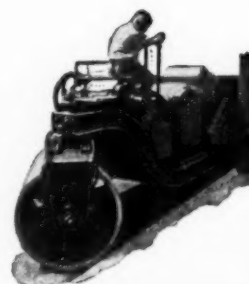
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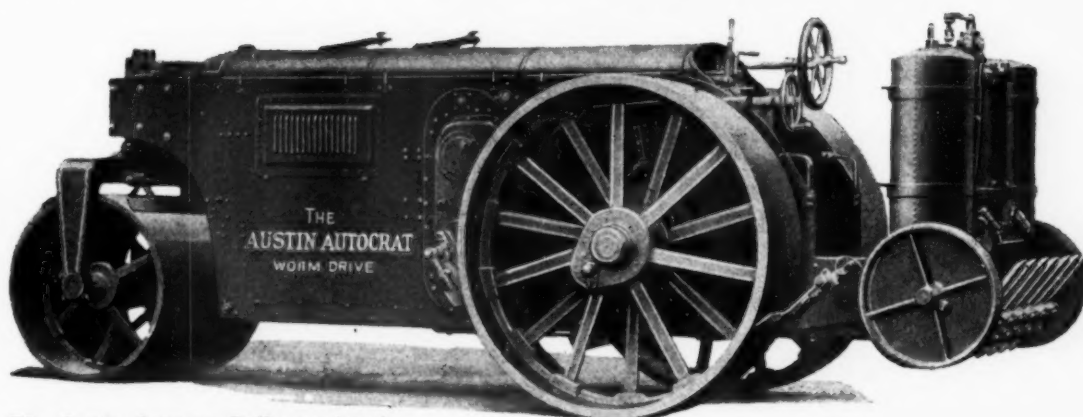
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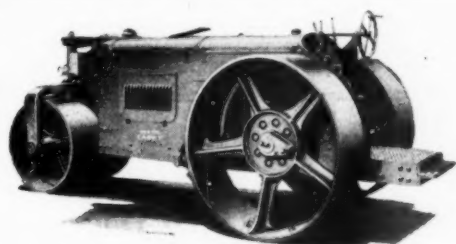


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Austin Autocrat is the only roller with DUPLEX WORM DRIVE. Also has electric starter—enclosed differential—three speeds forward and reverse



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Watch this pup!

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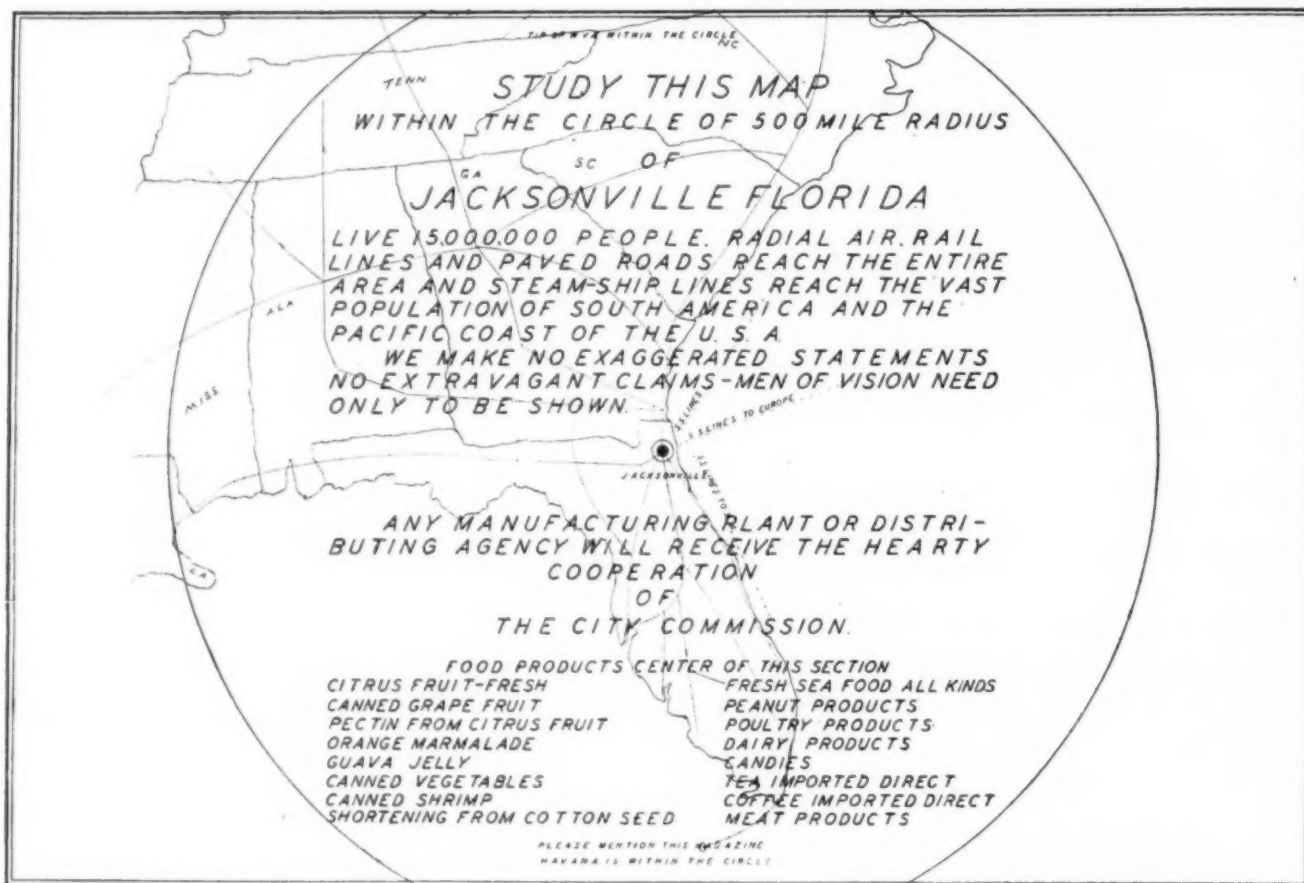
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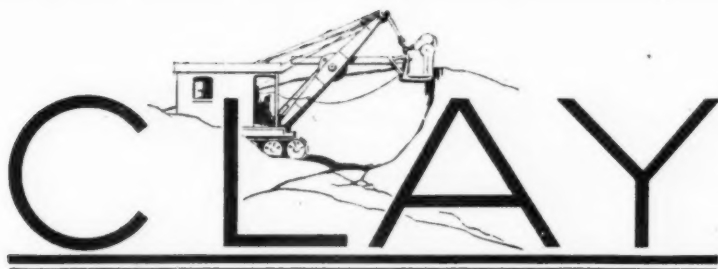
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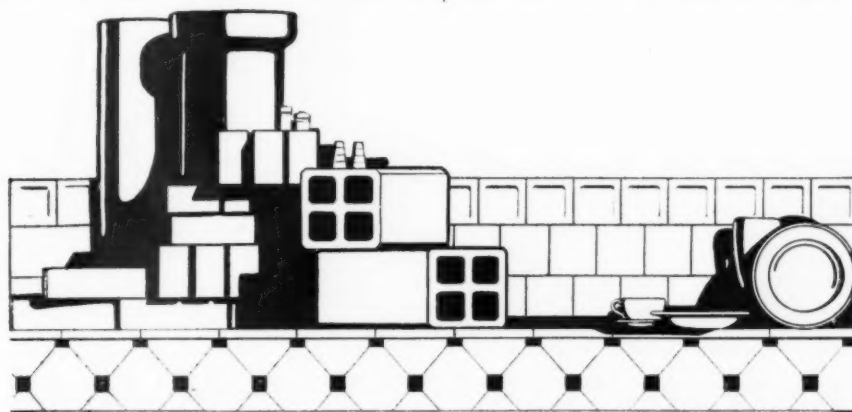
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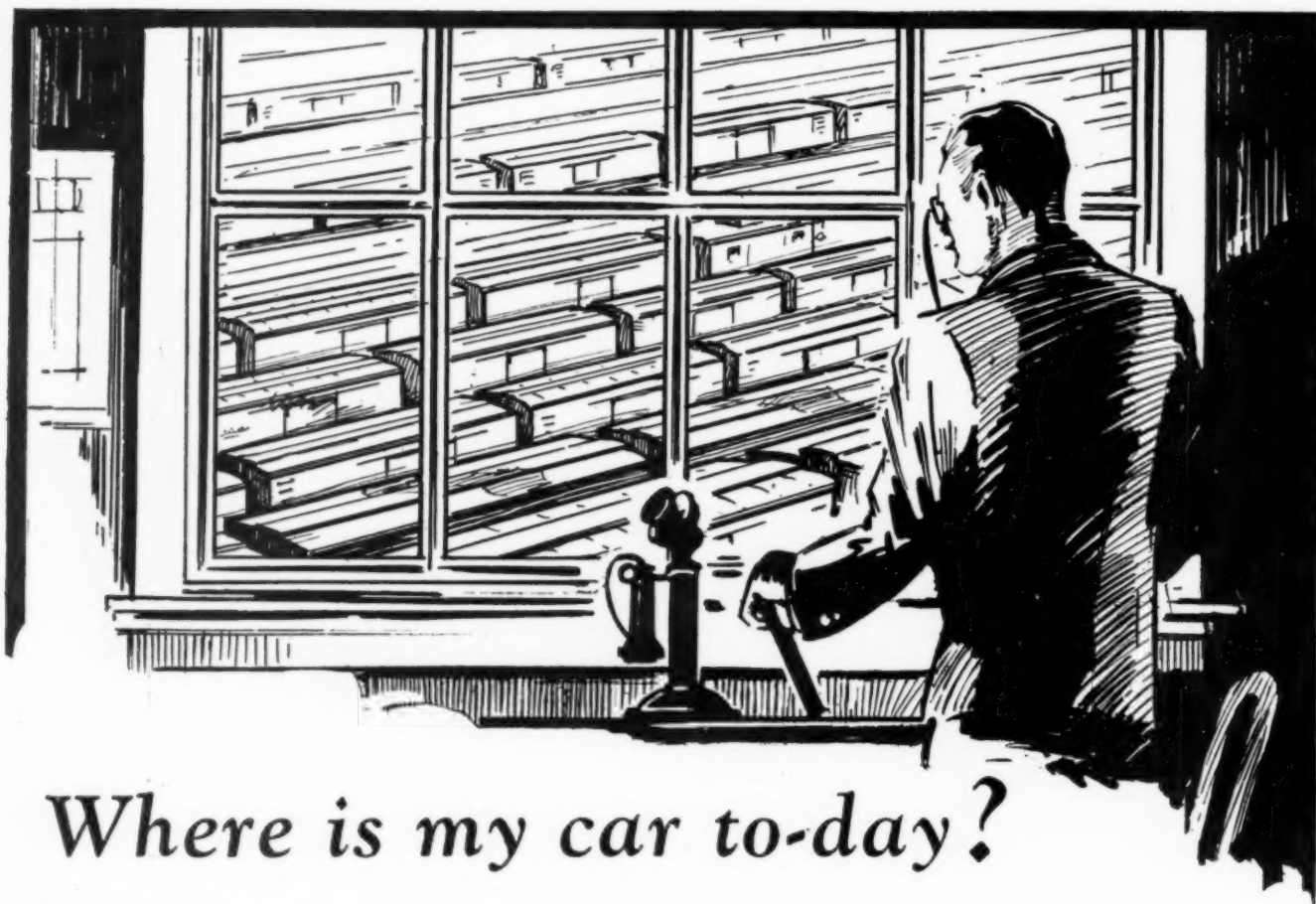
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A FAMILIAR QUESTION. Some shipper or receiver of freight asks it every hour and minute of the day. And when the query is addressed to the Norfolk and Western Railway it is answered promptly and correctly.

The office of the Superintendent of Car Service at Roanoke, Virginia, is the center of this information service. During 1929 this office was called upon, by telegraph or letter, to give information on 17,608 cars in addition to handling thousands of telephone requests for car records.

Here in this central office is maintained a running record showing all car movements on the Norfolk and Western—totalling more than 14,000,000 or an average of 46,658 per day, in 1929. And this all-inclusive record at Roanoke is supplemented by daily telegraphic reports from 20 key points showing (for approximately 148,000 cars a year) car numbers, contents, destinations and time of forwarding. These

telegraphic passing reports go to the interested larger traffic agencies on the line as well as to the central office, and provide timely data with which to answer inquiries from consignees.

In addition to telegraphic connection between 256 stations and the central office, railway owned and operated telephone lines provide direct communication with 93 important points. New extensions to five other points are now under construction. These facilities provide, not only for the quick handling of inquiries made through the office of the Superintendent of Car Service, but also enable local representatives to communicate with yards and agencies concerning cars moving within their territory.

So, when traffic managers and others concerned with the movement of freight turn to the Norfolk and Western Railway for an answer to the old question, "Where is my car today"—they receive it promptly, accurately and courteously.

**NORFOLK AND WESTERN
RAILWAY**



Classified Reference Index for Buyers

ABRASIVE MATERIALS.

Carborundum Co., Niagara Falls, N. Y.

ACCOUNTANTS (Cert. and Cost.)

Black & Co., Baltimore, Md.
Ernst & Ernst, New York, N. Y.
Le Baron, E. T., Jacksonville, Fla.

AERIAL MAPS and SURVEYS.

Airmap Corp. of Amer., Brooklyn, N. Y.

AIR COMPRESSORS (Stationary and Portable.)

Chicago Pneumatic Tool Co., New York.
De Laval Steam Turbine Co., Trenton, N. J.
Ingersoll-Rand Co., New York, N. Y.
New Engine Co., Lansing, Mich.
O. K. Clutch & Mch. Co., Columbia, Pa.
Quincy Compressor Co., Quincy, Ill.
Sullivan Machinery Co., Chicago, Ill.
Westinghouse Traction Brake Co., Wheeling, Pa.

AIR CONDITIONING SYSTEMS.

Skinner Bros. Mfg. Co., St. Louis, Mo.
Swartwout Co., Cleveland, Ohio.

AIRPORTS.

Shaw Co., Russell B., St. Louis, Mo.

ALUMINUM BRONZE POWDER.

Aluminum Co. of Amer., Pittsburgh.

AMMONIA Valves and Fittings.

Vogt Mch. Co., Henry, Louisville, Ky.

ANCHORS (Floor & Wall.)

Bull Dog Floor Clip Co., Winterset, Iowa.

ANGLE IRON-WORKING MACHINERY.

Whitney Metal Tool Co., Rockford, Ill.

APPRAISERS.

American Appraisal Co., Milwaukee, Wis.
Conard & Buzby, Burlington, N. J.
Main, Inc., Chas. T., Boston, Mass.

ARCHITECTS.

Bond, Geo. Harwell, Atlanta, Ga.
Chase, Wm., J. J., Atlanta.
Lindale, Claude H., Jackson, Miss.
Main, Inc., Chas. T., Boston, Mass.
Milburn, Heister & Co., Wash., D. C.
Moyer Co., Tilghman, Allentown, Pa.
Preacher & Co., Inc., G. Lloyd, Atlanta.
Sirrline & Co., J. E., Greenville, S. C.
Wheeler, Walter H., Minneapolis, Minn.
Widmer Engineering Co., St. Louis, Mo.

—(Golf Course, Landscape.)

Draper, E. S., Charlotte, N. C.
Kirbye & Co., Raleigh, N. C.
Miller & Asso., Wendell P., Columbus, O.
Spoon & Lewis, Greensboro, N. C.

ARCHITECTS' SUPPLIES.

Weber Co., Inc., F., Philadelphia, Pa.

ARCHITECTURAL Iron Work.

Dietrich Brothers, Baltimore, Md.
Virginia Bridge & Iron Co., Roanoke, Va.

ASH Removal Systems (Gates, Hoppers, Quenchers, etc.)

Allen-Sherman-Hoff Co., Phila., Pa.

—Sluicing Systems.

Allen-Sherman-Hoff Co., Phila., Pa.

—Storage Tanks (Cast Iron.)

Allen-Sherman-Hoff Co., Phila., Pa.

ASPHALT.

Gulf Refining Co., Pittsburgh, Pa.

—Filler.

American Limestone Co., Knoxville, Tenn.
Servicised Premoulded Products, Inc., Chicago, Ill.

—Paving.

Barber Asphalt Co., Philadelphia, Pa.

—(Rock.)

Kentucky Rock Asphalt Co., Louisville, Ky.

AUDITORS.

Black & Co., Baltimore, Md.
Ernst & Ernst, New York, N. Y.
Le Baron, Ernest T., Jacksonville, Fla.

BABBITT METAL.

Ryerson & Sons, Inc., Jos. T., St. Louis and New York.

BACKFILLERS.

Austin Machinery Corp., Muskegon, Mich.
Buckeye Traction Ditcher Co., Findlay, O.
Harnischfeger Corp., Milwaukee, Wis.
Parsons Co., The, Newton, Iowa.

BALLAST (Railroad.)

American Limestone Co., Knoxville, Tenn.

BANKERS and BROKERS.

Prorident Savings Bank & Trust Co., Cincinnati, Ohio.
Taylor, Wilson & Co., Inc., Cincinnati, Ohio.

BANKS and TRUST COMPANIES.

Baltimore Commercial Bank, Balto., Md.
Bank of Alabama, The, Ensley, Ala.
Bank of New York & Trust Co., N. Y.
Century Trust Co., Baltimore, Md.
Equitable Trust Co., New York, N. Y.
First and Merchants National Bank, Richmond, Va.
Maryland Trust Co., Baltimore, Md.
Mercantile Trust Co., Baltimore, Md.

BAR Benders.

Koehring Co., Milwaukee, Wis.

—Cutters.

Koehring Co., Milwaukee, Wis.

BARGES (Steel.)

American Bridge Co., New York, N. Y.
McClintic-Marshall Co., Pittsburgh, Pa.

BARS (Steel, Rounds, Flats, Hexagon and Squares.)

Carnegie Steel Co., Pittsburgh, Pa.
Connors Steel Co., Birmingham, Ala.
Gulf States Steel Co., Birmingham, Ala.
Knoxville Iron Co., Knoxville, Tenn.
Republic Iron & Steel Co., Youngstown, Ohio.

Ryerson & Son, Inc., Jos. T., St. Louis and New York.

Sweet's Steel Corp., Williamsport, Pa.
Tennessee Coal, Iron & Railroad Co., Birmingham, Ala.
Timken Roller Bearing Co., Canton, Ohio.
Virginia Bridge & Iron Co., Roanoke, Va.
Youngstown Sheet & Tube Co., Youngstown, Ohio.

BATTERIES (Storage.)

Electric Storage Battery Co., Phila., Pa.

BAUXITE ORE (Crude, Dried, Calcined.)

Dixie Bauxite Co., Sweet Home, Ark.

BEAMS, CHANNELS, ANGLES.

Belmont Iron Works, Philadelphia, Pa.
Carnegie Steel Co., Pittsburgh, Pa.
Tennessee Coal, Iron & Railroad Co., Birmingham, Ala.
Virginia Bridge & Iron Co., Roanoke, Va.

BEARINGS (Anti-friction.)

Hyatt Roller Bearing Co., Newark, N. J.
Timken Roller Bearing Co., Canton, Ohio.

—(Line Shaft.)

Wood's Sons Co., T. B., Chambersburg, Pa.

—(Roller.)

Hyatt Roller Bearing Co., Newark, N. J.
Timken Roller Bearing Co., Canton, Ohio.

BELT (Chain.)

Diamond Chain & Mfg. Co., Indianapolis.
Morse Chain Co., Ithaca, N. Y.

—(Leather, Canvas, Rubber.)

Baltimore Belting Co., Baltimore, Md.
Charlotte Leathet Belting Co., Charlotte, N. C.
Republic Rubber Co., Youngstown, Ohio.

—Dressing.

Dixon Crucible Co., Jos., Jersey City, N. J.

—Conveyors.

Barber-Greene Co., Aurora, Ill.

BENCH LEGS

Angle Steel Stool Co., Plainwell, Mich.

—Drawers (Steel.)

Angle Steel Stool Co., Plainwell, Mich.

BENCHES and TABLES.

(Steel.)
Angle Steel Stool Co., Plainwell, Mich.

BILLETS (Basic Open Hearth.)

Gulf States Steel Co., Birmingham, Ala.
Republic Iron & Steel Co., Youngstown, Ohio.
Tennessee Coal, Iron & Railroad Co., Birmingham, Ala.

BINS (Drill and Reamer.)

Angle Steel Stool Co., Plainwell, Mich.

—(Steel Loading.)

Blaw-Knox Co., Pittsburgh, Pa.
Butler Bin Co., Waukesha, Wis.

BLASTING POWDER and Accessories.

Du Pont de Nemours & Co., E. I., Wilmington, Del.
Hercules Powder Co., Inc., Wilmington, Del.

BLINDS (Venetian and Awning.)

Wilson Corp., The J. G., New York.

BLOCKS (Chain.)

Harrington Co., The, Philadelphia, Pa.

—TACKLE for Wire and Manila Rope.

Patterson Co., W. W., Pittsburgh.

BLOWERS and Exhaust Fans.

National Blow Pipe & Mfg. Co., Ltd., New Orleans, La.

BLOW PIPE SYSTEMS.

National Blow Pipe & Mfg. Co., Ltd., New Orleans, La.
Skinner Bros. Mfg. Co., St. Louis, Mo.

BOILERS (New.)

Babcock & Wilcox Co., The, New York.
Charleston Dry Dock & Machine Co., Charleston, S. C.
Chattanooga Boiler & Tank Co., Chattanooga, Tenn.
Cole Mfg. Co., R. D., Newnan, Ga.
Combustion Engr. Corp., New York, N. Y.
Lambard Iron Works & Supply Co., Augusta, Ga.
Schofield's Sons Co., J. S., Macon, Ga.
Titusville Iron Works Co., Titusville, Pa.
Vogt Mch. Co., Henry, Louisville, Ky.

—(Used.)

Delta Equipment Co., Philadelphia, Pa.
Randle Machinery Co., The, Cincinnati, O.
Zelnicke Supply Co., W. A., St. Louis.

BOILER SETTINGS.

Harbison-Walker Refractories Co., Pittsburg.

—Tubes.

Boller Tube Co. of America, Pittsburgh.
National Tube Co., Pittsburgh, Pa.
Ryerson & Son, Inc., Jos. T., St. Louis and New York.

—Tubes (Charcoal, Iron.)

Reading Iron Co., Reading, Pa.

BOLTS, Rivets, Studs, Washers.

Bethlehem Steel Co., Bethlehem, Pa.
Progressive Mfg. Co., Torrington, Conn.
Republic Iron & Steel Co., Youngstown, Ohio.
Russell, Burdall & Ward Bolt & Nut Co., Port Chester, N. Y.
Ryerson & Son, Inc., Jos. T., St. Louis and New York.
Virginia Bridge & Iron Co., Roanoke, Va.

—(Track.)

Sweet's Steel Co., Williamsport, Pa.

BOND BUYERS.

Garraway & Co., S. G., Chicago.
Hanchett Bond Co., Inc., The, Chicago.
Law & Co., A. M., Spartanburg, S. C.
Marx & Co., Birmingham, Ala.
Mercantile Trust Co., Baltimore, Md.
Nuveen & Co., John, Chicago, Ill.
Provident Savings Bank and Trust Co., Cincinnati, Ohio.
Robinson-Humphrey Co., Atlanta, Ga.
Seasongood & Mayer, Cincinnati, Ohio.
Taylor, Wilson & Co., Inc., Cincinnati, Ohio.

BORING (Core.)

Mott Core Drilling Co., Huntington, W. Va.
Pennsylvania Drilling Co., Pittsburgh, Pa.
Southern Drilling Co., Saltville, Va.
Sprague & Henwood, Inc., Scranton, Pa.

BOXES (Paper.)

Old Dominion Box Co., Lynchburg, Va.

BRASS GOODS.

Chase Brass & Copper Co., Waterbury, Conn.
Copper and Brass Research Assn., New York.
Mueller Co., Decatur, Ill.

BRICK (Common Building.)

Friend & Co., Inc., Petersburg, Va.

—(Face.)

Alabama Clay Prod. Co., Birmingham.

—(Fire.)

Alabama Clay Prod. Co., Birmingham.
Cambria Clay Products Co., Blackfork, O.
Dee Co., Wm. E., Oak Hill, Ohio.
Taylor Sons Co., Charles, Cincinnati.

—(Vitrified, Paving.)

Natl. Paving Brick Mfrs. Assn., Washington, D. C.

—and Clayworking Machy.

Steel & Sons, J. C., Statesville, N. C.

BRIDGE (Asphalt Planking.)

Servicised Premoulded Products, Inc., Chicago, Ill.

—Operating Machinery

Earle Gear & Machine Co., Phila., Pa.

—Timber.

Amer. Creosoting Co., Louisville, Ky.
Industrial Lumber Co., Elizabeth, La.

BRIDGES (Concrete.)

Atlantic Bridge Co., Greensboro, N. C.

—(Creosoted Wood.)

Atlantic Bridge Co., Greensboro, N. C.

—(Steel.)

American Bridge Co., New York, N. Y.
Atlantic Bridge Co., Greensboro, N. C.
Belmont Iron Works, Philadelphia, Pa.
Champion Bridge Co., Wilmington, O.
Converse Bridge & Steel Co., Chattanooga, Tenn.
Ingalls Iron Works Co., Birmingham, Ala.
McClintic-Marshall Co., Pittsburgh, Pa.
Nashville Bridge Co., Nashville, Tenn.
Richmond Struc. Steel Co., Richmond, Va.
Virginia Bridge & Iron Co., Roanoke, Va.

BRONZE (Architectural.)

Heath Company, J. S., Waukegan, Ill.

—(Machine.)

Moccasin Brushing Co., Chattanooga, Tenn.

BUBBLERS.

Rundle-Spence Mfg. Co., Milwaukee, Wis.
Taylor Co., Halsey W., Warren, Ohio.

BUCKETS (Clam Shell.)

Blaw-Knox Co., Pittsburgh, Pa.
Hayward Co., The, New York, N. Y.
Industrial Brownhoist Corp., Cleveland, O.
Owen Bucket Co., The, Cleveland, Ohio.

—(Dredging, Excavating, Sewer, etc.)

Hayward Co., The, New York, N. Y.
Monaghan Mfg. Corp., Chicago, Ill.
Owen Bucket Co., The, Cleveland, Ohio.
Stuebner Iron Works, G. L., Long Island City, N. Y.

—(Elevator.)

Hendrick Mfg. Co., Carbondale, Pa.
Webster & Weller Mfg. Companies, Chicago, Ill.

—(Orange Peel.)

Hayward Co., The, New York, N. Y.

—(Ore Handling.)

Hayward Co., The, New York, N. Y.
Owen Bucket Co., The, Cleveland, Ohio.
Stuehner Iron Works, G. L., Long Island City, N. Y.

BUILDERS and Contractors.

Barstow & Co., W. S., Reading, Pa.
Moyer Co., Tilghman, Allentown, Pa.
Stone & Webster, Inc., Boston, Mass.
Thompson & Bros., T. C., Charlotte, N. C.
White Engineering Corp., J. G., New York.

BUILDINGS (Industrial.)

Belmont Iron Works, Philadelphia, Pa.
Blaw Knox Co., Pittsburgh, Pa.
Braden Steel Corp., Tulsa, Okla.
Butler Mfg. Co., Kansas City, Mo.
Maryland Metal Building Co., Balto., Md.
McClintock-Marshall Co., Pittsburgh, Pa.
Nashville Bridge Co., Nashville, Tenn.
Trucon Steel Co., Youngstown, Ohio.
Virginia Bridge & Iron Co., Roanoke, Va.

—(Portable Sheet Metal.)

Braden Steel Corp., Tulsa, Okla.
Butler Mfg. Co., Kansas City, Mo.
Maryland Metal Building Co., Balto., Md.

BULKHEADS.

Shore-Line Builders, Inc., Jacksonville, Fla.
Snare Corp., Frederick, New York, N. Y.

BULLDOZERS.

Beatty Machine & Mfg. Co., Hammond, Ind.
Trackson Co., Milwaukee, Wis.

BUSHINGS (Brass and Bronze.)

Meeceasin Bushing Co., Chattanooga, Tenn.

BUSINESS METHODS.

Ernst & Ernst, New York, N. Y.

CABINETS (Steel.)

Angle Steel Stool Co., Plainwell, Mich.

CABLES (Stud Link.)

Woodhouse Chain Works, Trenton, N. J.

—and Wire (Electric.)

American Steel & Wire Co., Balto., Md.
Okonite Co., New York, N. Y.
Roehling's Sons Co., John A., Trenton, N. J.
Western Electric Co., New York City.

CABLEWAYS (Overhead Suspension.)

Broderick & Bascom Rope Co., St. Louis.
Sauerman Bros., Chicago, Ill.

CALCIUM CHLORIDE.

Grasselli Chemical Co., Inc., Birmingham, Ala.
Solvay Sales Corp., New York City.

CAN and Box-Making Machinery

(Tin.)
Bliss Co., E. W., Brooklyn, N. Y.
Robins & Co., A. K., Baltimore, Md.

CANNING MACHINERY.

Robins & Co., A. K., Baltimore, Md.

CAR Loaders and Unloaders.

Barber-Greene Co., Aurora, Ill.
Stephens-Adams Mfg. Co., Birmingham, Ala.

—Pullers.

Webster & Weller Mfg. Companies, Chicago, Ill.

CARS (Dump, Industrial, Logging and Mine.)

Atlas Car & Mfg. Co., The, Cleveland, O.
Easton Car & Construction Co., Easton, Pa.
Koppel Ind. Car & Equip. Co., Koppel, Pa.
Southern Iron & Equipment Co., Atlanta.

—Steps (Safety.)

Irving Iron Works Co., Long Island City, N. Y.

CASTERS (Truck.)

Service Caster & Truck Co., Albion, Mich.

CASTINGS (Brass, Bronze and Aluminum.)

Inter-State Fdry. & Mach. Wks., Johnson City, Tenn.
Meeceasin Bushing Co., Chattanooga, Tenn.

—(Chilled Iron.)

Fuller Lehigh Co., Fullerton, Penna.

—(Gray Iron.)

Columbian Iron Works, Chattanooga, Tenn.
Fuller Lehigh Co., Fullerton, Penna.
Glasgow Pipe & Fdry. Co., Lynchburg, Va.

Hammond Iron Co., Birmingham, Ala.
Inter-State Fdry. & Mach. Wks., Johnson City, Tenn.

National Cast Iron Pipe Co., Birmingham, Ala.
Roanoke Iron & Bridge Works, Inc., Roanoke, Va.

Salem Fdry. & Mach. Wks., Salem, Va.
U. S. Pipe & Foundry Co., Burlington, N. J.

—(Malleable Iron and Steel.)

Timken Roller Bearing Co., Canton, O.

—(Semi-Steel.)

Salem Fdry. & Machine Works, Salem, Va.

—(Steel.)

Bethlehem Steel Co., Bethlehem, Pa.
Crucible Steel Casting Co., Lansdowne, Delaware Co., Pa.
Desmer Steel Casting Co., New Castle, Del.
Lunkenheimer Co., Cincinnati, Ohio.

CAUSTICIZERS.

Swenson Evaporator Co., Harvey, Ill.

CEMENT (High Temperature.)

Harblson Walker Refractories Co., Pittsburg.

—(Portland.)

Alpha Portland Cement Corp., Birmingham, Ala.
Lehigh Portland Cement Co., New York.
Louisville Cement Co., Louisville, Ky.
Portland Cement Assn., Chicago, Ill.
Universal Atlas Cement Co., New York.

—Guns.

Cement-Gun Co., Inc., Allentown, Pa.

—Machinery.

Allis-Chalmers Mfg. Co., Milwaukee, Wis.

CHAIN BLOCKS (See Blocks, Chain.)**CHAINS (Dredge, Quarry, Steam Shovel.)**

Knoxville Iron Co., Knoxville, Tenn.
Woodhouse Chain Works, Trenton, N. J.

—(High Speed Roller.)

Diamond Chain & Mfg. Co., Indianapolis.

—(Silent Drive.)

Diamond Chain & Mfg. Co., Indianapolis.

—(Sprocket.)

Chain Belt Co., Milwaukee, Wis.

Diamond Chain & Mfg. Co., Indianapolis.

Morse Chain Co., Ithaca, N. Y.

—(Welded.)

Woodhouse Chain Works, Trenton, N. J.

CHAIRS (Opera and Theatre.)

Andrews Co., A. H., Chicago, Ill.
Brunswick Seating Works, Lawrenceville, Va.

—and Stools (Steel.)

Angle Steel Stool Co., Plainwell, Mich.

CHEMICALS.

Grasselli Chemical Co., Inc., Birmingham, Ala.

CHEMICAL MACHINERY.

Swenson Evaporator Co., Harvey, Ill.

CHEMICAL TOILETS.

Kaustine Co., Inc., Perry, N. Y.

CHEMISTS, CHEMICAL ENGINEERS (Analytical.)

Barrow-Agee Laboratories, Memphis, Tenn.
Flood & Co., Walter H., Chicago, Ill.
Froehling & Robertson, Inc., Richmond, Va.
Hunt Co., Robert W., Chicago, Ill.

Meigs, Bassett & Slaughter, Phila., Pa.

Picard Laboratories, The, Birmingham, Ala.

Pittsburgh Testing Laboratories, Pittsburgh, Pa.

Southwestern Laboratories, Fort Worth, Texas.

Stillman & Van Sclen, New York.

Wiley & Co., Inc., Baltimore, Md.

—(Consulting, Paper Industry.)

Froehling & Robertson, Inc., Richmond, Va.

CHIMNEYS (Concrete.)

Rust Engineering Co., Birmingham, Ala.

—(Radial Brick.)

Rust Engineering Co., Birmingham, Ala.

CHLORIDE ACCUMULATOR.

Electric Storage Battery Co., Phila., Pa.

CHLORINATORS.

Rees, S. P., Atlanta.

CIRCUIT BREAKERS.

I. T. E. Circuit Breaker Co., Phila., Pa.
Westinghouse Electric & Mfg. Co., E. Pittsburgh, Pa.

CITY AND TOWN PLANNING.

Draper, E. S., Charlotte, N. C.
Ludlow Engineers, Winston-Salem, N. C.

CLAMPS (Steel Column.)

Boos Co., H. W., Cincinnati.

CLEANERS (Metal, Waste, General.)

Oakite Products, Inc., New York, N. Y.

CLOCKS (For all purposes.)

Kaiser Klock Co., L. E., Baltimore, Md.

—(Watchman's Portable.)

Davis-Paradis Watchman's Clock Corp., New York, N. Y.

Kaiser Klock Co., L. E., Baltimore, Md.

CLUTCHES (Friction.)

Caldwell Co., Inc., W. E., Louisville, Ky.
Footie Bros. Gear and Mach. Co., Chicago.
Schultz & Son, A. L., Chicago, Ill.
Wood's Sons Co., T. B., Chambersburg, Pa.

COAL (Bituminous.)

Hammond Iron Co., Birmingham, Ala.
Sloss-Sheffield Steel & Iron Co., Birmingham, Ala.

Tennessee Coal, Iron & Railroad Co., Birmingham, Ala.

—and Ash-Handling Mch.

Allen-Sherman-Hoff Co., Phila., Pa.
Chain Belt Co., Milwaukee, Wis.
Harvard Co., The, New York, N. Y.

Industrial Brownhoist Corp., Cleveland, O.

Northwest Engineering Co., Chicago.

Stephens-Adams Mfg. Co., Birmingham, Ala.

Webster & Weller Mfg. Companies, Chicago, Ill.

—Bunkers (Cast Iron.)

Allen-Sherman-Hoff Co., Phila., Pa.

—Tipples.

American Bridge Co., New York, N. Y.

Virginia Bridge & Iron Co., Roanoke, Va.

COCKS (Service.)

Merco Nordstrom Valve Co., San Francisco, Calif.

COKE.

Hammond Iron Co., Birmingham, Ala.
Sloss-Sheffield Steel & Iron Co., Birmingham, Ala.

Tennessee Coal, Iron & Railroad Co., Birmingham, Ala.

COLUMNS (Cast Iron.)

U. S. Pipe & Foundry Co., Burlington, N. J.

COMPRESSORS (Gasoline Extension.)

Sullivan Machinery Co., Chicago, Ill.

CONCRETE (Accelerators.)

Solvay Sales Corp., New York City.

—Block Machinery.

Bystone Mfg. Co., Cambridge Springs, Pa.

—Block Pallets.

Commercial Shearing & Stamping Co., Youngstown, Ohio.

—Construction (Reinforced.)

Cement-Gun Co., Inc., Allentown, Pa.
Cement Gun Construction Co., Chicago.
Rust Engineering Co., Birmingham, Ala.

—Floor Slabs.

American Cement Tile Mfg. Co., Pittsburgh, Pa.

—Information Only.

Portland Cement Assn., Chicago, Ill.

—Mixers.

Bystone Mfg. Co., Cambridge Springs, Pa.

Chain Belt Co., Milwaukee, Wis.

Dunning & Boschert Press Co., Inc., Syracuse, N. Y.

Jaeger Machine Co., Columbus, Ohio.

Koehring Co., Milwaukee, Wis.

Lansing Co., Lansing, Mich.

—Pipe Machinery (See Pipe Machinery, Concrete.)

—Road Curing.

McEverlast, Inc., Los Angeles, Cal.

—Road Hardeners.

Solvay Sales Corp., New York City.

—Roofing Tile.

American Cement Tile Mfg. Co., Pittsburgh, Pa.

CONDENSERS.

Chicago Pneumatic Tool Co., New York.
Ingersoll-Rand Co., New York, N. Y.
Manitowoc Iron Works Co., Manitowoc, Mich.

Swenson Evaporator Co., Harvey, Ill.

Westinghouse Electric & Mfg. Co., E. Pittsburgh, Pa.

CONDUITS (Electric, Interior, Steel.)

Western Electric Co., New York City.

Youngstown Sheet & Tube Co., Youngstown, Ohio.

CONTRACTORS (Airports.)

Miller & Assn., Wendell P., Chicago.

—(Bridge.)

Kansas City Bridge Co., Kansas City, Mo.

Snare Corp., Frederick, New York.

—(Drainage and Dredging.)

Arundel Corp., The, Baltimore, Md.

Atlantic Gulf and Pacific Co., New York.

—(Electrical.)

Industrial Electrical Co., Savannah, Ga.

Walker Electrical Co., Atlanta, Ga.

Webb Electric Co., Anderson, S. C.

—(Foundations and Dams.)

Calligan & Co., A. H., Richmond, Va.

Snare Corp., Frederick, New York, N. Y.

—(General.)

Angle-Blackford Co., Greensboro, N. C.

Blair, Algernon, Montgomery, Ala.

Charleston Constructors, Inc., Charleston, S. C.

Cornell-Young Co., Inc., Macon, Ga.

Fiske-Carter Constr. Co., Greenville, S. C.

Gridley Constr. Co., Lee A., Knoxville, Tenn.

Saville, Inc., Allen J., Richmond, Va.

Seaboard & Southern Constr. Co., Inc., Jacksonville, Fla.

Snare Corp., Frederick, New York, N. Y.

Stone & Webster, Inc., Boston, Mass.

Thompson & Bros., T. C., Charlotte, N. C.

Tucker & Laxton, Charlotte, N. C.

White Engineering Corp., J. G., New York.

—(Industrial Buildings.)

Angle-Blackford Co., Greensboro, N. C.

Barstow & Co., W. S., Reading, Pa.

Blair, Algernon, Montgomery, Ala.

Fiske-Carter Constr. Co., Greenville, S. C.

Seaboard & Southern Constr. Co., Inc., Jacksonville, Fla.

Snare Corp., Frederick, New York, N. Y.

Stone & Webster, Inc., Boston, Mass.

Thompson & Bros., T. C., Charlotte, N. C.

Tucker & Laxton, Charlotte, N. C.

White Engineering Corp., J. G., New York.

—Machinery & Supplies (Used.)

Charles F. Cohen, Lima, Ohio.

Dempster Equip. Co., Knoxville, Tenn.

—Mill Village.

Hornbuckle Contracting Co., Atlanta, Ga.

—(Plastering.)

Gomer & Co., P. L., Atlanta, Ga.

Jennings & Co., Floyd, Atlanta, Ga.

—(Power Plants.)

Snare Corp., Frederick, New York, N. Y.

—(Railroad.)

Calligan & Co., A. H., Richmond, Va.

Cornell-Young Co., Inc., Macon, Ga.

—(Reinforced Concrete.)

Blair, Algernon, Montgomery, Ala.

Cement Gun Construction Co., Chicago.

Gunita Conc. & Constr. Co., Kansas City.

Seaboard & Southern Constr. Co., Inc., Jacksonville, Fla.

Tucker & Laxton, Charlotte, N. C.

—(Road and Street Paving.)

Fiske-Carter Constr. Co., Greenville, S. C.

Gridley Constr. Co., Lee A., Knoxville, Tenn.

Hornbuckle Contracting Co., Atlanta, Ga.

McCrory Co., The J. B., Atlanta, Ga.

Snare Corp., Frederick, New York, N. Y.

Tucker & Laxton, Charlotte, N. C.

—(Swimming Pool.)

Rees, S. P., Atlanta, Ga.

—(Water-Works.)

Pittsburgh-Des Moines Steel Co., Pittsburgh, Pa.

—Machinery and Supplies.**—(New.)**

COTTON GIN MACHINERY.

Continental Gin Co., Birmingham, Ala.

—Mill Machinery.

Southern Spindle & Flyer Co., Inc., Charlotte, N. C.

COUNTING APPARATUS.

Veeder-Root, Inc., Hartford, Conn.

COUPLINGS.

Goldens' Fdy. & Mch. Co., Columbus, Ga.

—(Shaft.)Foote Bros. Gear & Machine Co., Chicago.
Wood's Sons Co., T. B., Chambersburg, Pa.**CRANES.**Austin Machinery Corp., Muskegon, Mich.
Buckeye Traction Ditcher Co., Findlay, O.
Northwest Engineering Co., Chicago, Ill.
Ohio Power Shovel Co., Lima, Ohio.
The Shovel Co., The, Lorain, Ohio.**—(Crawler.)**Buckeye Traction Ditcher Co., Findlay, O.
Harnischfeger Corp., Milwaukee, Wis.
Northwest Engineering Co., Chicago, Ill.
Ohio Power Shovel Co., Lima, Ohio.
The Shovel Co., The, Lorain, Ohio.**—(Crawling Tractor.)**Northwest Engineering Co., Chicago, Ill.
Ohio Power Shovel Co., Lima, Ohio.
The Shovel Co., The, Lorain, Ohio.**—(Electric Traveling.)**Harnischfeger Corp., Milwaukee, Wis.
Milwaukee Elec. Crane & Hoist Corp., Milwaukee, Wis.**—(Full Circle Steam and Electric.)**Austin Machinery Corp., Muskegon, Mich.
Northwest Engineering Co., Chicago, Ill.
Ohio Power Shovel Co., Lima, Ohio.
The Shovel Co., The, Lorain, Ohio.**—(Gasoline.)**Buckeye Traction Ditcher Co., Findlay, O.
Harnischfeger Corp., Milwaukee, Wis.
Industrial Brownhoist Corp., Cleveland, O.
Northwest Engineering Co., Chicago, Ill.
Ohio Power Shovel Co., Lima, Ohio.
The Shovel Co., The, Lorain, Ohio.**—(Locomotive.)**Bucyrus-Erie Co., Erie, Penna.
Industrial Brownhoist Corp., Cleveland, O.
Northwest Engineering Co., Chicago, Ill.
Ohio Power Shovel Co., Lima, Ohio.
The Shovel Co., The, Lorain, Ohio.**—(Material Handling.)**Bay City Shovels, Inc., Bay City, Mich.
Industrial Brownhoist Corp., Cleveland, O.
Northwest Engineering Co., Chicago, Ill.
Ohio Power Shovel Co., Lima, Ohio.
The Shovel Co., The, Lorain, Ohio.
Universal Crane Co., Lorain, Ohio.**—Portable (Floor.)**

Beatty Machine & Mfg. Co., Hammond, Ind.

—(Traveling, Hand Power.)

Harrington Co., The, Philadelphia, Pa.

CRAWLERS (Tractor.)Riddell Co., W. A., Bucyrus, Ohio.
Trackson Co., Milwaukee, Wis.**CREOSOTED MATERIALS.**Amer. Creosote Wks., Inc., New Orleans.
Delaware Wood Preserving Co., Phila.
Savannah Creosoting Co., Savannah, Ga.**CREOSOTED TIMBER.**

Ayer & Lord Tie Co., Chicago, Ill.

CREOSOTE OIL.Amer. Creosote Wks., Inc., New Orleans.
Ayer & Lord Tie Co., Inc., Chicago.**CREOSOTING (Wood Materials.)**Amer. Creosote Wks., Inc., New Orleans.
Amer. Creosoting Co., Inc., Louisville, Ky.
Delaware Wood Preserving Co., Phila.
Eppinger & Russell Co., New York, N. Y.
Gulf States Creos. Co., Hattiesburg, Miss.
Pettibone & Sons, J. F., Charleston, S. C.
Savannah Creosoting Co., Savannah, Ga.
Taylor-Colquitt Co., Spartanburg, S. C.
Wales Wood-Preserving Co., Norfolk, Va.**CROSS-ARMS (Creosoted.)**Amer. Creosote Wks., Inc., New Orleans.
Amer. Creosoting Co., Inc., Louisville, Ky.
Ayer & Lord Tie Co., Inc., Chicago.
Eppinger & Russell Co., New York, N. Y.
Pettibone & Sons, J. F., Charleston, S. C.
Savannah Creosoting Co., Inc., Savannah, Ga.**—(Zinc Meta Arsenite Treated.)**

Curtin-Howe Corp., New York, N. Y.

CROSS-TIES (Creosoted.)Amer. Creosote Wks., Inc., New Orleans.
Amer. Creosoting Co., Inc., Louisville, Ky.
Ayer & Lord Tie Co., Inc., Chicago.
Eppinger & Russell Co., New York, N. Y.
Pettibone & Sons, J. F., Charleston, S. C.
Savannah Creosoting Co., Inc., Savannah, Ga.
Taylor-Colquitt Co., Spartanburg, S. C.**—(Zinc Meta Arsenite Treated.)**

Curtin-Howe Corp., New York, N. Y.

CRUSHED STONE (Road Concrete and Ballast.)American Limestone Co., Knoxville, Tenn.
Boxley & Co., W. W., Roanoke, Va.**CRUSHERS (Coal and Coke.)**Fuller Lehigh Co., Fullerton, Pa.
—Rock.
Universal Crusher Co., Cedar Rapids, Iowa.**CRUSHING and Pulverizing Machinery.**Allis-Chalmers Mfg. Co., Milwaukee, Wis.
Day Pulverizer Co., Knoxville, Tenn.
Fuller Lehigh Co., Fullerton, Pa.
McLanahan-Stone Machine Co., Hollidaysburg, Pa.
Raymond Bros. Impact Pulverizer Co., Chicago, Ill.
Sturtevant Mill Co., Boston, Mass.
Universal Crusher Co., Cedar Rapids, Iowa.
W-K-M Co., Inc., Houston, Texas.**CULVERT PIPE (Cast Iron.)**Amer. Cast Iron Pipe Co., Birmingham, Ala.
Cast Iron Pipe Research Assn., Chicago.
Gallon Iron Works & Mfg. Co., Gallon, O.
U. S. Pipe & Foundry Co., Burlington, N. J.**—(Corrugated Metal.)**American Sheet & Tin Plate Co., Pittsburgh, Pa.
Armco Culvert Mfrs. Assn., Middletown, O.
Dixie Culvert & Metal Co., Atlanta, Ga.
Dixie Culvert Mfg. Co., Little Rock, Ark.
Gallon Iron Works & Mfg. Co., Gallon, O.
Louisiana Corr. Culvert Co., Baton Rouge, La.
Tenn. Metal Culvert Co., Nashville, Tenn.
Western Metal Mfg. Co., Houston, Texas.**CURB PROTECTORS (Steel Bars.)**

Truscon Steel Co., Youngstown, O.

CUTTERS (Wire Rope.)

Leechen & Sons Rope Co., A., St. Louis.

CUTTING COMPOUNDS.

Oakite Products, Inc., New York, N. Y.

CYLINDERS (Compressed Air, Gas.)Janney, Jr., Jos. A., Phila., Pa.
National Tube Co., Pittsburgh, Pa.**DERRICKS and Derrick Fittings.**Clyde Iron Works Sales Co., Duluth, Minn.
Sagen Derrick Co., Chicago, Ill.**DESKS (School.)**

Andrews Co., A. H., Chicago, Ill.

—(Steel Factory.)

Angle Steel Stool Co., Plainwell, Mich.

DIFFUSERS.

Swenson Evaporator Co., Harvey, Ill.

DIGESTERS (Welded.)

Swenson Evaporator Co., Harvey, Ill.

DITCHING MACHINERY.Barber-Greene Co., Aurora, Ill.
Bay City Shovels, Inc., Bay City, Mich.
Buckeye Traction Ditcher Co., Findlay, O.
Harnischfeger Corp., Milwaukee, Wis.
Hayward Co., The, New York, N. Y.
Industrial Brownhoist Corp., Cleveland, O.
Northwest Engineering Co., Chicago, Ill.
Ohio Power Shovel Co., Lima, Ohio.
Owen Bucket Co., The, Cleveland, O.
Parsons Co., Newton, Iowa.**DOORS (Fire.)**Merchant & Evans Co., Philadelphia, Pa.
Richards-Wilcox Mfg. Co., Aurora, Ill.**—(Fireproof, Air Chamber.)**

Wilson Corp., The J. G., New York.

—(Freight Elevator.)

Peelle Co., The, Brooklyn, N. Y.

—(Kalamein.)

Moeschl-Edwards Corr. Co., Cincinnati.

—(Rolling, Steel and Wood.)Kinnear Mfg. Co., The, Columbus, Ohio.
Mahon Co., R. C., Detroit, Mich.
Moeschl-Edwards Corr. Co., Cincinnati.**—(Steel.)**

Detroit Steel Products Co., Detroit, Mich.

—(Tubular Steel.)

Bayley Co., Wm., Springfield, O.

DRAFTSMEN'S SUPPLIES.

Weber Co., Inc., F., Philadelphia, Pa.

DRAGLINE EXCAVATORS.Austin Machinery Corp., Muskegon, Mich.
Bucyrus-Erie Co., Erie, Penna.Harnischfeger Corp., Milwaukee, Wis.
Kochring Co., Milwaukee, Wis.
Monaghan Mfg. Corp., Chicago, Ill.
Northwest Engineering Co., Chicago, Ill.
Ohio Power Shovel Co., Lima, Ohio.
Sauerman Bros., Chicago, Ill.
The Shovel Co., The, Lorain, Ohio.
Universal Power Shovel Co., Milwaukee, Wis.**DREDGES (Dipper, Elevator, Hydraulic.)**Bay City Shovels, Inc., Bay City, Mich.
Bucyrus-Erie Co., Erie, Pa.
Ellicott Machine Corp., Baltimore, Md.
Morris Machine Wks., Baldwinville, N. Y.**DREDGING (River and Harbor Improvement.)**Arundel Corp., The, Baltimore, Md.
Atlantic Gulf and Pacific Co., New York.**—Machinery.**American Steel Dredge Co., Fort Wayne, Ind.
Ellicott Machine Corp., Baltimore, Md.
Hayward Co., The, New York.**DRILLING CONTRACTORS.**Mott Core Drilling Co., Huntington, W. Va.
Pennsylvania Drilling Co., Pittsburgh, Pa.
Southern Drilling Co., Saltville, Va.
Sprague & Henwood, Inc., Scranton, Pa.**DRILLS (Artesian Well.)**

Virginia Machinery & Well Co., Inc., Richmond, Va.

—(Electric.)Chicago Pneumatic Tool Co., New York.
Sullivan Mch. Co., Chicago.**—(Pneumatic.)**Chicago Pneumatic Tool Co., New York.
Ingersoll-Rand Co., New York, N. Y.
Sullivan Machinery Co., Chicago, Ill.**DRINKING FOUNTAINS.**Rundle-Spence Mfg. Co., Milwaukee, Wis.
Taylor Co., Halsey W., Warren, Ohio.**DROP-FORGING MACHINERY.**

Bliss Co., E. W., Brooklyn, N. Y.

DRYERS (Gravel and Sand.)

Ripley Fdy. & Mch. Co., Ripley, Ohio.

DRY KILNS and Equipment.

Moore Dry Kiln Co., Jacksonville, Fla.

DRYING MACHINERY.

American Process Co., New York, N. Y.

DUMP TRUCK BODIES and HOISTS.Commercial Shearing & Stamping Co., Youngstown, Ohio.
Easton Car & Construction Co., Easton, Pa.
Lee Trailer & Body Co., Inc., Plymouth, Ind.**DUSTPROOFING (Concrete.)**Solvay Sales Corp., New York City.
Sonnenborn Sons, Inc., L., New York.**DYESTUFFS.**

Du Pont de Nemours & Co., Inc., E. I., Wilmington, Del.

DYNAMITE (Industrial and Agricultural.)Du Pont de Nemours & Co., Inc., E. I., Wilmington, Del.
Hercules Powder Co., Inc., Wilmington, Del.**ELECTRICAL Instruments and Supplies.**Adams Electric Co., Frank, St. Louis.
Western Electric Co., New York City.**—Machinery (Generators, Motors, etc., New.)**Allis-Chalmers Mfg. Co., Milwaukee, Wis.
Elliott, Howard C., Miami, Fla.
Fairbanks Morse & Co., Chicago, Ill.
Howell Electric Motors Co., Howell, Mich.
Rockford Power Machy. Co., Rockford, Ill.
Westinghouse Electric & Mfg. Co., E., Pittsburgh, Pa.**—Machinery (Generators, Motors, etc., Used.)**Belyea Co., Inc., New York City.
Delta Equipment Co., Philadelphia, Pa.
Electric Service Co., Cincinnati, Ohio.
Electrical Equip. Co., Raleigh, N. C.
Gregory Electric Co., Chicago.
Nashville Industrial Corp., Old Hickory, Tenn.
Nussbaum & Co., V. M., Ft. Wayne, Ind.
O'Brien Machinery Co., The, Phila., Pa.
Randie Machinery Co., The, Cincinnati, O.
Rockford Power Machy. Co., Rockford, Ill.
Stewart Elec. Co., John A., Cincinnati.**—Machinery Repairing (Motors, Generators, etc.)**Electric Service Co., Cincinnati, Ohio.
Gregory Electric Co., Chicago.**ELECTRIC LIGHTING.**

General Electric Vapor Lamp Co., Hoboken, N. J.

ELECTRIC SHOVELS (See Shovels.)**ELEVATOR Cables.**

Leechen & Sons Rope Co., A., St. Louis.

—Enclosures.

Dufur, Baggott & Co., Baltimore, Md.

—(Equalizers.)

Evans Elevator Equalizer Co., Bedford, Ind.

ELEVATORS (Electric.)American Elevator & Machine Co., Inc., Louisville, Ky.
Miller Co., St. Louis, Mo.
Warsaw Elevator Co., Baltimore, Md.**—(Hand and Belt Power.)**American Elevator & Machine Co., Inc., Louisville, Ky.
Miller Co., St. Louis, Mo.
Warsaw Elevator Co., Baltimore, Md.**—(Hydraulic.)**American Elevator & Machine Co., Inc., Louisville, Ky.
Warsaw Elevator Co., Baltimore, Md.**—(Portable.)**

O. K. Clutch & Machy. Co., Columbia, Pa.

ENGINEERS (Airports.)Jenny, L. Alfred, Dumont, N. J.
Miller & Asso., Wendell P., Chicago, Ill.
Shaw Co., Russell B., St. Louis, Mo.**—(Appraisal.)**American Appraisal Co., Milwaukee, Wis.
Bartlett Engrs., Inc., Terrell, San Antonio, Texas.**—(Battery & Kipp, Inc., Chicago, Ill.)**Fay, Spofford & Thorndike, Boston, Mass.
Ford, Bacon & Davis, Inc., New York.
Gannett, Seclye & Fleming, Engineers, Inc., Harrisburg, Pa.
Jenny, L. Alfred, Dumont, N. J.
Lockwood Greene Engrs., Inc., New York City.Ludlow Engineers, Winston-Salem, N. C.
Main, Inc., Chas. T., Boston, Mass.
Sanderson & Porter, New York, N. Y.
Wadleigh & Bailey, Washington, D. C.
White Engineering Corp., J. G., New York.Wiedeman and Singleton, Inc., Atlanta.
Williamson, Lee H., Charlottesville, Va.**—(Aviation.)**Miller & Asso., Wendell P., Chicago, Ill.
Shaw Co., Russell B., St. Louis, Mo.**—(Bridge.)**Atlantic Bridge Co., Greensboro, N. C.
Billingsley, James W., New Orleans, La.
Fay, Spofford & Thorndike, Boston, Mass.
Freeland, Roberts & Co., Nashville, Tenn.
Gardner & Howe, Memphis, Tenn.
Greiner & Co., J. E., Baltimore, Md.
Hardaway Contracting Co., Columbus, Ga.
Hedrick, Inc., Ira G., Hot Springs, Nat'l Park, Ark.
Howerton Engineering Co., Asheville, N. C.
Steel & Leiby, Knoxville, Tenn.
Turner, C. A. P., Minneapolis, Minn.
Virginia Bridge & Iron Co., Roanoke, Va.
Wheeler, Walter H., Minneapolis, Minn.**—(Chemical.)**Barrow-Agee Laboratories, Memphis, Tenn.
Dew & Smith, New York, N. Y.
Flood & Co., Walter H., Chicago, Ill.
Picard Laboratories, Birmingham, Ala.
Pittsburgh Testing Laboratories, Pittsburgh, Pa.**—(Civil.)**Airmap Corp. of Amer., Brooklyn, N. Y.
Battery & Kipp, Inc., Chicago, Ill.
Charlton & Davis, Ft. Lauderdale, Fla.
Fuller & McClintock, New York, N. Y.
Gardner & Howe, Memphis, Tenn.
Greiner & Co., J. E., Baltimore, Md.
Harrub Engr. Co., C. N., Nashville, Tenn.
Hedrick, Inc., Ira G., Hot Springs, Nat'l Park, Ark.
Hills Co. George B., Jacksonville, Fla.
Main, Inc., Chas. T., Boston, Mass.
McCrady Co., John, Charleston, S. C.
Piatt, William M., Durham, N. C.
Ruggles, Inc., Charles H., West Palm Beach, Fla.
Spoon & Lewis, Greensboro, N. C.
Spring, Charles Herbert, Greensboro, N. C.
Steel & Leiby, Knoxville, Tenn.
White Engr. Corp., J. G., New York.**—(Consulting.)**Airmap Corp. of Amer., Brooklyn, N. Y.
Barstow & Co., W. E., Reading, Pa.
Biggs Engr. Co., W. H., Knoxville, Tenn.
Charlton & Davis, Ft. Lauderdale, Fla.
Converse & Co., J. B., Mobile, Ala.
Engineering Service Corp., Houston, Tex.
Harza, L. F., Chicago.
Hedrick, Inc., Ira G., Hot Springs, Nat'l Park, Ark.
Horty, Charles H., New York City.
Lockwood Greene Engrs., Inc., New York City.
Main, Inc., Chas. T., Boston, Mass.
McCrary Co., John, Charleston, S. C.
Ophuls & Hill, Inc., New York, N. Y.
Pennington, J. R., Carson City, Nev.
Ruggles, Inc., Charles H., West Palm Beach, Fla.
Smith, Elroy G., Augusta, Ga.
Stillman & Van Stien, New York, N. Y.
Wadleigh & Bailey, Washington, D. C.
White Engineering Corp., J. G., New York.
Wiedeman & Singleton, Inc., Atlanta, Ga.
Williamson, Lee H., Charlottesville, Va.

(Dams.)

Alpaugh & Sons, Chas. W., Manassas, Va.
 Batty & Kipp, Inc., Chicago, Ill.
 Byllesby Engineering & Management Corp., Chicago, Ill.
 Cooper & Co., Hugh L., New York, N. Y.
 Floyd & Lochridge, Dallas, Texas.
 Gardner & Howe, Memphis, Tenn.
 Hardaway Contracting Co., Columbus, Ga.
 Harza, L. F., Chicago.
 Hedrick Inc., Ira G., Hot Springs Nat'l. Park, Ark.
 Lee, William S., Charlotte, N. C.
 Main, Inc., Chas. T., Boston, Mass.
 Sirtine & Co., J. E., Greenville, S. C.
 Tucker & Laxton, Charlotte, N. C.
 Wheeler, Walter H., Minneapolis, Minn.
 White Engr. Corp., J. G., New York.

(Drainage and Irrigation.)

Floyd & Lochridge, Dallas, Texas.
 Ford, Bacon & Davis, Inc., New York.
 Fuller & McClintock, New York, N. Y.
 Hills Co., George B., Jacksonville, Fla.
 Ludlow Engineers, Winston-Salem, N. C.

(Efficiency.)

Barstow & Co., W. S., Reading, Pa.
 Ernst & Ernst, New York, N. Y.

(Electrical.)

Batty & Kipp, Inc., Chicago, Ill.
 Christian, Walter P., Greensboro, N. C.
 Cooper & Co., Hugh L., New York, N. Y.
 Engineering Service Corp., Houston, Texas.
 Hoosier Engineering Co., Chicago, Ill.
 Lee, William S., Charlotte, N. C.
 Lockwood Greene Engrs., Inc., New York City.
 Main, Inc., Chas. T., Boston, Mass.
 Mullergren, Arthur L., Kansas City, Mo.
 Sanderson & Porter, New York, N. Y.
 Stone & Webster, Inc., Boston, Mass.
 Tucker & Laxton, Charlotte, N. C.
 Webb Electric Co., Anderson, S. C.
 White Co., Gilbert C., Durham, N. C.
 Wiley & Wilson, Lynchburg, Va.

(Electric-Light and Power Plants.)

Barrows, H. K., Boston, Mass.
 Batty & Kipp, Inc., Chicago, Ill.
 Biggs Eng. Co., W. E., Knoxville, Tenn.
 Byllesby Engineering & Management Corp., Chicago, Ill.
 Cooper & Co., Hugh L., New York, N. Y.
 Ford, Bacon & Davis, Inc., New York.
 Lee, William S., Charlotte, N. C.
 Main, Inc., Chas. T., Boston, Mass.
 Mullergren, Arthur L., Kansas City, Mo.
 Sanderson & Porter, New York, N. Y.
 Stone & Webster, Inc., Boston, Mass.
 Tucker & Laxton, Charlotte, N. C.
 White Engineering Corp., J. G., New York.
 White Co., Gilbert C., Durham, N. C.

(Flood Control.)

Floyd & Lochridge, Dallas, Texas.
 Harza, L. F., Chicago.

(Gas.)

Byllesby Engineering and Management Corp., Chicago, Ill.
 Ford, Bacon & Davis, Inc., New York.

(Geological.)

De Kaib, Courtenay, New York City.
 Froehling & Robertson, Richmond, Va.
 Wadleigh & Bailey, Washington, D. C.

(Harbor Improvements.)

Billingsley, James W., New Orleans, La.
 Engineering Service Corp., Houston, Texas.

(Heating.)

Batty & Kipp, Inc., Chicago, Ill.
 Biggs Eng. Co., W. E., Knoxville, Tenn.
 Wiley & Wilson, Lynchburg, Va.

(Hydraulic.)

Alpaugh & Sons, Chas. W., Manassas, Va.
 Barrows, H. K., Boston, Mass.
 Floyd & Lochridge, Dallas, Texas.
 Fuller & McClintock, New York, N. Y.
 Harza, L. F., Chicago.
 Main, Inc., Chas. T., Boston, Mass.

(Hydro-electric.)

Alpaugh & Sons, Chas. W., Manassas, Va.
 Barrows, H. K., Boston, Mass.
 Batty & Kipp, Inc., Chicago, Ill.
 Byllesby Engineering & Management Corp., Chicago, Ill.
 Cooper & Co., Hugh L., New York, N. Y.
 Harza, L. F., Chicago.
 Lee, William S., Charlotte, N. C.
 Ludlow Engineers, Winston-Salem, N. C.
 Main, Inc., Chas. T., Boston, Mass.
 Mees & Mees, Charlotte, N. C.
 Platt, William M., Durham, N. C.
 Sanderson & Porter, New York, N. Y.
 Scofield Engineering Co., Phila., Pa.
 Sirtine & Co., J. E., Greenville, S. C.
 Tucker & Laxton, Charlotte, N. C.
 White Engineering Corp., J. G., New York.

(Ice and Refrigerating.)

Engineering Service Corp., Houston, Texas.
 Ophuls & Hill, Inc., New York, N. Y.

(Industrial Plants.)

Barstow & Co., W. S., Reading, Pa.
 Bartlett Engrs., Inc., Terrell, San Antonio, Texas.
 Batty & Kipp, Inc., Chicago, Ill.
 Biggs Eng. Co., W. E., Knoxville, Tenn.
 Billingsley, James W., New Orleans, La.
 Charleston Constructors, Inc., Charleston, S. C.
 Conser, Older & Quinlan, Inc., Chicago.
 Converse & Co., J. B., Mobile, Ala.
 Fay, Spofford & Thorndike, Boston, Mass.
 Gannett, Seelye & Fleming, Engineers, Inc., Harrisburg, Pa.
 Gardner & Howe, Memphis, Tenn.

Greiner & Co., J. E., Baltimore, Md.
 Harty, Charles H., New York City.
 Hills Co., George B., Jacksonville, Fla.
 Lockwood Greene Engrs., Inc., New York City.

Main, Inc., Chas. T., Boston, Mass.
 Mees & Mees, Charlotte, N. C.
 Morgan Constr. Co., Worcester, Mass.
 Mullergren, Arthur L., Kansas City, Mo.
 Ophuls & Hill, Inc., New York, N. Y.
 Preacher & Co., Inc., G. Lloyd, Atlanta.
 Sanderson & Porter, New York, N. Y.
 Scofield Engineering Co., Phila., Pa.
 Sirtine & Co., J. E., Greenville, S. C.
 Smith, Elroy G., Augusta, Ga.
 Stone & Webster, Inc., Boston, Mass.
 Turner, C. A. P., Minneapolis, Minn.
 Widmer Engineering Co., St. Louis, Mo.
 Williamson, Lee H., Charlottesville, Va.

(Industrial Survey.)

Converse & Co., J. B., Mobile, Ala.
 Harty, Charles H., New York City.
 Lockwood Greene Engrs., Inc., New York City.
 Wadleigh & Bailey, Washington, D. C.

(Inspection and Tests.)

Barrow-Age Laboratories, Memphis, Tenn.
 Conard & Buzby, Burlington, N. J.
 Dow & Smith, New York, N. Y.
 Flood & Co., Walter H., Chicago, Ill.
 Froehling & Robertson, Inc., Richmond, Va.
 Hunt Co., Robert W., Chicago, Ill.
 Picard Laboratories, Birmingham, Ala.
 Pittsburgh Testing Laboratories, Pittsburgh, Pa.
 Southwestern Laboratories, Ft. Worth, Texas.

(Landscapes.)

Draper, E. S., Charlotte, N. C.
 Kirby & Co., Raleigh, N. C.
 McCrady Co., John, Charleston, S. C.

(Lighting.)

Batty & Kipp, Inc., Chicago, Ill.
 Byllesby Engineering & Management Corp., Chicago, Ill.
 Ford, Bacon & Davis, Inc., New York.
 General Electric Vapor Lamp Co., Hoboken, N. J.
 Wiley & Wilson, Lynchburg, Va.

(Mechanical.)

Batty & Kipp, Inc., Chicago, Ill.
 Charlton & Davis, Ft. Lauderdale, Fla.
 Engineering Service Corp., Houston, Texas.
 Invicta Engineering Co., Birmingham, Ala.
 Lee, William S., Charlotte, N. C.
 Lockwood Greene Engrs., Inc., New York City.
 Main, Inc., Chas. T., Boston, Mass.
 Mees & Mees, Charlotte, N. C.
 Meigs, Bassett & Slaughter, Phila., Pa.
 Sanderson & Porter, New York, N. Y.
 Wiley & Wilson, Lynchburg, Va.

(Mining. See Engineers, Geological.)**(Municipal.)**

Bartlett Engrs., Inc., Terrell, San Antonio, Texas.
 Billingsley, James W., New Orleans, La.
 Conser, Older & Quinlan, Inc., Chicago.
 Dow & Smith, New York, N. Y.
 Gannett, Seelye & Fleming, Engineers, Inc., Harrisburg, Pa.
 Harrah Engr. Co., C. N., Nashville, Tenn.
 Hills Co., George B., Jacksonville, Fla.
 Howerton Engineering Co., Asheville, N. C.
 Knowles, Inc., Morris, Pittsburgh, Pa.
 Ludlow Engineers, Winston-Salem, N. C.
 McCrady Co., The J. B., Atlanta, Ga.
 Spoon & Lewis, Greensboro, N. C.
 White Co., Gilbert C., Durham, N. C.

(Paving and Roads.)

Billingsley, James W., New Orleans, La.
 Dow & Smith, New York, N. Y.
 Freeland, Roberts & Co., Nashville, Tenn.
 Harrah Engr. Co., C. N., Nashville, Tenn.
 Howerton Engineering Co., Asheville, N. C.
 Ludlow Engineers, Winston-Salem, N. C.
 Platt, William M., Durham, N. C.
 Spoon & Lewis, Greensboro, N. C.
 White Co., Gilbert C., Durham, N. C.

(Production.)

Scofield Engr. Co., Phila., Pa.

(Public Service Properties.)

Byllesby Engineering & Management Corp., Chicago, Ill.
 Cooper & Co., Hugh L., New York, N. Y.
 Ford, Bacon & Davis, Inc., New York.
 Fuller & McClintock, New York, N. Y.
 Gannett, Seelye & Fleming, Engineers, Inc., Harrisburg, Pa.
 Knowles, Inc., Morris, Pittsburgh, Pa.
 Main, Inc., Chas. T., Boston, Mass.
 Sanderson & Porter, New York, N. Y.
 Scofield Engineering Co., Phila., Pa.
 Stone & Webster, Inc., Boston, Mass.
 White Engineering Corp., J. G., New York.

(Railroad.)

Jenny, L. Alfred, Dumont, N. J.
 Mees & Mees, Charlotte, N. C.

(Reinforced Concrete Bridges, Buildings, etc.)

Atlantic Bridge Co., Greensboro, N. C.
 Batty & Kipp, Inc., Chicago, Ill.
 Fay, Spofford & Thorndike, Boston, Mass.
 Freeland, Roberts & Co., Nashville, Tenn.
 Gardner & Howe, Memphis, Tenn.
 Greiner & Co., J. E., Baltimore, Md.
 Lockwood Greene Engrs., Inc., New York City.
 Main, Inc., Chas. T., Boston, Mass.

Steel & Leiby, Knoxville, Tenn.
 Tucker & Laxton, Charlotte, N. C.
 Turner, C. A. P., Minneapolis, Minn.
 Wheeler, Walter H., Minneapolis, Minn.

(Research and Development.)

Invicta Engineering Co., Birmingham, Ala.

(Sanitary.)

Harza, L. F., Chicago.

(Sea Walls.)

Ruggles, Charles H., Inc., West Palm Beach, Fla.

(Sewage Disposal Plants.)

Fuller & McClintock, New York, N. Y.
 Kaustine Co., Inc., Perry, N. Y.
 Ludlow Engineers, Winston-Salem, N. C.
 McCrady Co., The J. B., Atlanta, Ga.
 Platt, William M., Durham, N. C.
 Wiedeman and Singleton, Inc., Atlanta.

(Sewerage and Waterworks.)

Barrows, H. K., Boston, Mass.
 Conard & Buzby, Burlington, N. J.
 Conser, Older & Quinlan, Inc., Chicago.
 Ford, Bacon & Davis, Inc., New York.
 Fuller & McClintock, New York, N. Y.
 Harrah Engr. Co., C. N., Nashville, Tenn.
 Hills Co., George B., Jacksonville, Fla.
 Howerton Engineering Co., Asheville, N. C.
 Knowles, Inc., Morris, Pittsburgh, Pa.
 Ludlow Engineers, Winston-Salem, N. C.
 Mees & Mees, Charlotte, N. C.
 Pennington, J. R., Carson City, Nev.
 Platt, William M., Durham, N. C.
 Sanderson & Porter, New York, N. Y.
 Spoon & Lewis, Greensboro, N. C.
 Tucker & Laxton, Charlotte, N. C.
 White Co., Gilbert C., Durham, N. C.
 White Engineering Corp., J. G., New York.

(Sewerage and Waterworks.)

Wiedeman & Singleton, Inc., Atlanta, Ga.
 Williamson, Lee H., Charlottesville, Va.

(Structural.)

Bartlett Engrs., Inc., Terrell, San Antonio, Texas.
 Freeland, Roberts & Co., Nashville, Tenn.
 Hedrick, Inc., Ira G., Hot Springs Nat'l. Park, Ark.
 Hills Company, Geo. B., Jacksonville, Fla.
 Lockwood Greene Engrs., Inc., New York City.
 Turner, C. A. P., Minneapolis, Minn.
 Virginia Bridge & Iron Co., Roanoke, Va.

(Textile Mills.)

Lockwood Greene Engrs., Inc., New York City.

(Transmission Lines.)

Hoosier Engineering Co., Chicago, Ill.

(Ventilating and Heating.)

Biggs Eng. Co., W. E., Knoxville, Tenn.

(Water Supply.)

Floyd & Lochridge, Dallas, Texas.
 Pennington, J. R., Carson City, Nev.

ENGINES (Compressed Air.)

Dake Engine Co., Grand Haven, Mich.

(Diesel Type.)

Fairbanks, Morse & Co., Chicago, Ill.

(Gas and Gasoline.)

Light Mfg. & Fdry. Co., Pottstown, Pa.
 Novo Engine Co., Lansing, Mich.
 Sterling Engine Co., Buffalo, N. Y.
 Wisconsin Motors Co., Milwaukee, Wis.

(Gas and Oil.)

Chicago Pneumatic Tool Co., New York.

(Hoisting.)

Clyde Iron Works Sales Co., Duluth, Minn.

(Marine.)

Fairbanks, Morse & Co., Chicago, Ill.

(Oil.)

Ingersoll-Rand Co., New York, N. Y.
 Continental Gin Co., Birmingham, Ala.

(Steam.)

Allis-Chalmers Mfg. Co., Milwaukee, Wis.
 Cole Mfg. Co., R. D., Newman, Ga.
 Lefel & Co., The James, Springfield, O.
 Lombard Iron Works & Supply Co., Augusta, Ga.
 Morris Machine Works, Baldwinville, N. Y.
 Schofield's Sons Co., J. S., Macon, Ga.

ENVELOPES.

Young & Seldon Co., Baltimore, Md.

ESTIMATORS (Building & Construction.)

Spring, Charles Herwart, Greensboro, N. C.

EVAPORATORS.

Svenson Evaporator Co., Harvey, Ill.

EXCAVATING MACHINERY.

Bay City Shovel, Inc., Bay City, Mich.
 Buckeye Traction Ditcher Co., Findlay, O.
 Bucyrus-Erie Co., Erie, Penna.
 Clyde Iron Works Sales Co., Duluth, Minn.
 Harnischfeger Corp., Milwaukee, Wis.
 Hayward Co., The, New York, N. Y.
 Industrial Brownhoist Corp., Cleveland, Ill.
 Monaghan Mfg. Corp., Chicago, Ill.
 Northwest Engineering Co., Chicago, Ill.
 Owen Bucket Co., The, Cleveland, Ohio.
 Parsons Co., The, Newton, Iowa.
 Shaw Shovel Co., The, Lorain, Ohio.
 Universal Power Shovel Co., Milwaukee, Wis.

EXCAVATORS (Clamshell and Orange Peel.)

Northwest Engineering Co., Chicago, Ill.
 Ohio Power Shovel Co., Lima, Ohio.
 Shaw Shovel Co., Lorain, Ohio.
 —(Dragline. See Dragline Excavators.)

(Trench.)

Barber-Greene Co., Aurora, Ill.
 Bay City Shovel, Inc., Bay City, Mich.
 Buckeye Traction Ditcher Co., Findlay, O.
 Bucyrus-Erie Co., Erie, Penna.
 Harnischfeger Corp., Milwaukee, Wis.
 Hayward Co., The, New York, N. Y.
 Monaghan Mfg. Corp., Chicago, Ill.
 Ohio Power Shovel Co., Lima, Ohio.
 Parsons Co., The, Newton, Iowa.
 Universal Power Shovel Co., Milwaukee, Wis.

EXHAUST FANS (See Blowers and Exhaust Fans.)**—Systems (See Blowers and Exhaust Fans.)****EXPANSION JOINTS (Road and Street.)**

Servicised Premoulded Products, Inc., Chicago, Ill.

EXPLOSIVES.

Du Pont de Nemours & Co., Inc., E. I., Wilmington, Del.
 Hercules Powder Co., Inc., Wilmington, Del.

FACTORY Management Systems.

Ernst & Ernst, New York, N. Y.

FANS, Exhaust (See Blowers and Exhaust Fans.)**FEED-WATER HEATERS and Purifiers.**

American Water Softener Co., Phila., Pa.

FELT (Building Sheathing.)

Barrett Co., The, New York, N. Y.

FENCE POSTS (Creosoted.)

Ayer & Lord Tie Co., Chicago, Ill.

FENCING Entrance Gates (Iron, Steel and Wire.)

American Steel and Wire Co., Balto., Md.
 Anchor Post Fence Co., Baltimore, Md.
 Page Fence Association, Chicago, Ill.
 Stewart Iron Works Co., Cincinnati, O.
 —(Field and Industrial, Wire Woven.)
 American Steel and Wire Co., Balto., Md.
 Anchor Post Fence Co., Baltimore, Md.
 Gulf States Steel Co., Birmingham, Ala.
 Page Fence Association, Chicago, Ill.
 Stewart Iron Works Co., Cincinnati, O.

FERTILIZER MACHINERY.

Raymond Bros., Impact Pulv. Co., Chicago.

FILTER (For Domestic and Industrial Purposes.)

American Water Softener Co., Phila., Pa.
 International Filter Co., Chicago, Ill.
 Rees, S. P., Atlanta.
 Roberts Filter Mfg. Co., Darby (Phila.), Pa.
 Seale & Sons Co., Wm. B., Oakmont, Pa.

FINANCING.

Akers, William, Atlanta, Ga.
 Century Trust Co., Balto., Md.
 Electric Bond & Share Co., New York.
 Equitable Trust Co., New York City.
 Garraway & Co., S. G., Chicago.
 Gay & Co., W. O., New York, N. Y.
 Marx & Co., Birmingham, Ala.

FIRE CLAY.

Alabama Clay Products Co., Birmingham.
 Cambria Clay Products Co., Blackfork, O.

FIRE EXTINGUISHERS.

Myers & Bro. Co., The F. E., Ashland, O.

FIREPROOF Building Material.

Rannon Pipe Co., Louisville, Ky.

Robertson Co., H. H., Pittsburgh.

—Doors and Shutters.

Kinross Mfg. Co., The, Columbus, Ohio.
 Mahon Co., R. C., Detroit, Mich.
 Moeschl-Edwards Corp., Cincinnati, O.
 Richards-Wilcox Mfg. Co., Aurora, Ill.

FIREPROOFING MATERIAL and Construction.

Pelle Co., The, Brooklyn, N. Y.

FITTINGS (Wire Rope.)

Leschen & Sons Rope Co., A., St. Louis.

FLANGES (Iron and Steel.)

Amer. Cast Iron Pipe Co., Birmingham.
 Dart Mfg. Co., E. M., Providence, R. I.

- National Cast Iron Pipe Co., Birmingham, Ala.
Taylor Forge & Pipe Wks., Chicago, Ill.
U. S. Pipe & Foundry Co., Burlington, N. J.
Vogt Mch. Co., Henry, Louisville, Ky.
- (and Flanged Fittings.)
Grinnell Co., Inc., Providence, R. I.
- FLOOR (Asphalt Mastic.)**
Barber Asphalt Co., Philadelphia, Pa.
- (Asphalt Plank.)
Serviced Premoulded Products, Inc., Chicago, Ill.
- (Composition.)
Johns-Manville Corp., New York, N. Y.
- (Cork Composition.)
Congoleum-Nairn, Inc., Kearny, N. J.
- (Hardwood, Maple, Oak.)
Nashville Hardwood Flooring Co., Nashville, Tenn.
- (Northern Hard Maple.)
Holt Hardwood Co., Oconto, Wis.
- (Open Steel.)
Blaw-Knox Co., Pittsburgh, Pa.
Irving Iron Works Co., Long Is. City, N. Y.
Kerlow Steel Flooring Co., Jersey City, N. J.
- (Rubber and Cork.)
Congoleum-Nairn, Inc., Kearny, N. J.
- (Anchors.)
Bull Dog Floor Clip Co., Winterzet, Iowa.
- (Covering.)
Congoleum-Nairn, Inc., Kearny, N. J.
- (Hardener (Concrete).)
Ronneborn Sons, Inc., L., New York.
Stonhard Co., Phila., Pa.
- (Plates and Stair Treads.)
American Pressed Steel Co., Phila., Pa.
Central Iron & Steel Co., Harrisburg, Pa.
- (Rivets and Bolts.)
Ryerson & Son, Inc., Jos. T., St. Louis and New York.
- (Steel (For Concrete Culverts, Roads, Streets).)
Blaw-Knox Co., Pittsburgh, Pa.
- (Wax.)
Congoleum-Nairn, Inc., Kearny, N. J.
- (Wood) Preservative.
Stonhard Co., Phila., Pa.
- FLUSH-TANK SIPHONS.**
Kaustine Co., Inc., Perry, N. Y.
Pacific Flush-Tank Co., New York, N. Y.
- FLYER PRESSERS.**
Southern Spindle & Flyer Co., Charlotte, N. C.
- FLYERS.**
Southern Spindle & Flyer Co., Charlotte, N. C.
- FORGINGS (Drop.)**
Vogt Mch. Co., Henry, Louisville, Ky.
- FORMS, Steel (For Concrete, Culverts, Roads, Streets, Curbs, Sidewalks, Tiles.)**
Blaw-Knox Co., Pittsburgh, Pa.
- FOUNDATION MASONRY.**
Calligan Co., A. H., Richmond, Va.
- FOUNDRIES and Machine Shops.**
Deemer Steel Casting Co., New Castle, Del.
General Machine Works, York, Pa.
Glamorgan Pipe & Fdry. Co., Lynchburg, Va.
Goldens' Fdry. & Mch. Co., Columbus, Ga.
Lombard Iron Works & Supply Co., Augusta, Ga.
Moecasin Bushing Co., Chattanooga, Tenn.
- FOUNDRY Equipment and Supplies.**
Chain Belt Co., Milwaukee, Wis.
Hill & Griffith Co., The, Cincinnati, O.
- (Facings (Tale and Soapstone).)
Hill & Griffith Co., The, Cincinnati, O.
- FUMIGATORS (Fruit, Nuts, Nursery Stock, etc.)**
Union Tank & Pipe Co., Los Angeles, Cal.
- FURNACES (Industrial.)**
Combustion Engr., Corp., New York City.
- (Water-Cooled.)
Combustion Engr. Corp., New York City.
Fuller Lehigh Co., Fullerton, Pa.
- GALVANIZED Products.**
Cattle & Bros., Jos. P., Philadelphia, Pa.
- (Steel and Iron.)
American Rolling Mill Co., Middletown, O.
- American Sheet & Tin Plate Co., Pittsburgh, Pa.
Granite City Steel Co., Granite City, Ill.
Republic Iron & Steel Co., Youngstown, O.
- GALVANIZING (Hot Dip.)**
Bessemer Galvanizing Works, Birmingham, Ala.
Cattle & Bros., Jos. P., Philadelphia, Pa.
Newport News Shipbuilding & Drydock Co., Newport News, Va.
- GARAGES (Metal.)**
Maryland Metal Building Co., Balto., Md.
- GARBAGE DISPOSAL SYSTEMS**
Seacell Corp., New York, N. Y.
- GAS HOLDERS.**
Chicago Bridge & Iron Works, Atlanta, Ga.
- (Producers.)
Gas-O-Flame Store Works, Port Deposit, Md.
Morgan Construction Co., Worcester, Mass.
Wood & Co., R. D., Philadelphia, Pa.
- GASOLINE and KEROSENE.**
Gulf Refining Co., Pittsburgh, Pa.
- GASOLINE SHOVELS (See Shovels.)**
- GATES (Automatic Drainage.)**
Armo Culvert Mfrs. Assn., Middletown, O.
Dixie Culvert & Metal Co., Atlanta, Ga.
Dixie Culvert Mfg. Co., Little Rock, Ark.
Louisiana Corr. Culvert Co., Baton Rouge, La.
Tenn. Metal Culvert Co., Nashville, Tenn.
Western Metal Mfg. Co., Houston, Texas.
- GAUGE GLASSES.**
Jenkins Bros., New York, N. Y.
- GEARS.**
DeLaval Steam Turbine Co., Trenton, N. J.
Earle Gear & Machine Co., Phila., Pa.
Foote Bros. Gear & Mch. Co., Chicago.
- (Cut.)
Ohio Gear Co., Cleveland, Ohio.
- (Worm Reduction.)
DeLaval Steam Turbine Co., Trenton, N. J.
Foote Bros. Gear and Mch. Co., Chicago.
- GENERATORS, MOTORS (New.)**
Allis-Chalmers Mfg. Co., Milwaukee, Wis.
Howell Electric Motors Co., Howell, Mich.
Westinghouse Elec. & Mfg. Co., E. Pittsburgh, Pa.
- (Used.)
Belyea Co., Inc., New York City.
Electrical Equip. Co., Raleigh, N. C.
Gregory Electric Co., Chicago.
Nashville Ind. Corp., Old Hickory, Tenn.
Nussbaum & Co., V. M., Ft. Wayne, Ind.
O'Brien Machinery Co., Phila., Pa.
Randle Machinery Co., The, Cincinnati, O.
Stewart Elec. Co., John A., Cincinnati.
- GEOLOGISTS. (See Engineers; Geological.)**
- GLASS (Art.)**
Binswanger & Co., Memphis, Tenn.
Hires Turner Glass Co., Philadelphia, Pa.
- (Plate.)
Binswanger & Co., Inc., Memphis, Tenn.
Blue Ridge Glass Corp., Kingsport, Tenn.
Hires Turner Glass Co., Philadelphia, Pa.
- (Window.)
Blue Ridge Glass Corp., Kingsport, Tenn.
Hires Turner Glass Co., Philadelphia, Pa.
- (Wire.)
Blue Ridge Glass Corp., Kingsport, Tenn.
Hires Turner Glass Co., Phila., Pa.
- GRADERS (Elevating.)**
Adams Co., J. D., Indianapolis, Ind.
Caterpillar Tractor Co., San Leandro, Calif.
- (Leaning Wheel Road.)
Adams Co., J. D., Indianapolis, Ind.
Gallon Iron Works & Mfg. Co., Gallon, O.
- (One Man Motor.)
Adams Co., J. D., Indianapolis, Ind.
Gallon Iron Works & Mfg. Co., Gallon, O.
Riddell Co., W. A., Bucyrus, Ohio.
- (Turbine.)
Koehring Co., Milwaukee, Wis.
- GRAPHITE.**
Dixon Crucible Co., Jos., Jersey City, N. J.
- GRATES and Grate Bars.**
Schofield's Sons Co., J. S., Macon, Ga.
Vogt Machine Co., Henry, Louisville, Ky.
- GRATING (Area, Flooring, Sidewalk.)**
Blaw-Knox Co., Pittsburgh, Pa.
Hendrick Mfg. Co., Carbondale, Pa.
- Irving Iron Works, Long Is. City, N. Y.
Kerlow Steel Flooring Co., Jersey City, N. J.
- GRAVEL (Roofing and Road.)**
American Limestone Co., Knoxville, Tenn.
Arundel Corp., The, Baltimore, Md.
Boxley & Co., W. W., Roanoke, Va.
Friend & Co., Inc., Petersburg, Va.
- GREASE CUPS.**
Lankenheimer Co., The, Cincinnati, O.
- GRILLES (Brass, Bronze, Steel, etc.)**
Manhattan Perforated Metal Co., Inc., Long Island City, N. Y.
- GRINDERS (Cylinder.)**
Hutto Engineering Co., Detroit, Mich.
- (Electric.)
Chicago Pneumatic Tool Co., New York.
- (Gypsum, Limestone, etc.)
Raymond Bros. Impact Pulv. Co., Chicago.
- GRINDING MACHINERY (Flexible Saft.)**
Hutto Engineering Co., Detroit, Mich.
Strand & Co., N. A., Chicago, Ill.
- (Wheels.)
Carborundum Co., Niagara Falls, N. Y.
- GUARD RAIL (Road.)**
National Traffic Guard Co., Atlanta.
- GUNITE CONSTRUCTION.**
Cement-Gun Co., Inc., Allentown, Pa.
Cement Gun Construction Co., Chicago.
Gunite Cone & Constr. Co., Kansas City.
Gunite Constr. Co., New York City.
Rust Engineering Co., Birmingham, Ala.
- GUNPOWDER.**
Du Pont de Nemours & Co., Inc., E. I., Wilmington, Del.
Hercules Powder Co., Inc., Wilmington, Del.
- GUNS (Hydraulic.)**
Georgia Iron Works, Augusta, Ga.
- HANGARS (Airplane.)**
Blaw-Knox Co., Pittsburgh, Pa.
Braden Steel Corp., Tulsa, Okla.
Maryland Metal Bldg. Co., Balto., Md.
- HANGERS (Door, All Kinds.)**
Richards-Wilcox Mfg. Co., Aurora, Ill.
- (Line Shaft.)
American Pulley Co., Philadelphia, Pa.
Wood's Sons Co., T. B., Chambersburg, Pa.
- HARBOR IMPROVEMENTS.**
Arundel Corp., Baltimore, Md.
Atlantic, Gulf & Pacific Co., New York.
- HARDWARE (Door.)**
Richards-Wilcox Mfg. Co., Aurora, Ill.
- HEATERS (Asphalt.)**
Honhester Co., Jos., Cincinnati, O.
- HEATING Apparatus (Engineers and Contractors.)**
Grinnell Co., Inc., Providence, R. I.
Skinner Bros. Mfg. Co., St. Louis, Mo.
- (Systems.)
Clarage Fan Co., Kalamazoo, Mich.
Skinner Bros. Mfg. Co., St. Louis, Mo.
- HOISTING MACHINERY.**
Clyde Iron Works Sales Co., Duluth, Minn.
- HOISTS (Air Portable.)**
Ingersoll-Rand Co., New York, N. Y.
Sullivan Machinery Co., Chicago, Ill.
- (Chain.)
Harrington Co., The, Philadelphia, Pa.
- (Electric.)
Clyde Iron Works Sales Co., Duluth, Minn.
Harnischfeger Corp., Milwaukee, Wis.
Milwaukee Elec. Crane & Hoist Corp., Milwaukee, Wis.
Mundy Hoisting Engine Co., J. S., Newark, N. J.
Novo Engine Co., Lansing, Mich.
O. K. Clutch & Machy. Co., Columbia, Pa.
Street Bros. Mch. Wks., Chattanooga, Tenn.
- (Gasoline.)
Clyde Iron Works Sales Co., Duluth, Minn.
Dake Engine Co., Grand Haven, Mich.
Mundy Hoisting Engine Co., J. S., Newark, N. J.
Novo Engine Co., Lansing, Mich.
- O. K. Clutch & Machy. Co., Columbia, Pa.
Street Bros. Mch. Wks., Chattanooga, Tenn.
- (Hand Power.)
O. K. Clutch & Machy. Co., Columbia, Pa.
- (Steam.)
Clyde Iron Works Sales Co., Duluth, Minn.
Dake Engine Co., Grand Haven, Mich.
Mundy Hoisting Engine Co., J. S., Newark, N. J.
Street Bros. Mch. Wks., Chattanooga, Tenn.
- HOOPS, Bands, etc. (Galvanized.)**
Connors Steel Co., Birmingham, Ala.
- HOPPERS (Aggregate, Measuring and Weighing.)**
Blaw-Knox Co., Pittsburgh, Pa.
Butler Bin Co., Waukesha, Wis.
- HOSE (Rubber.)**
Republic Rubber Co., Youngstown, Ohio.
- HOTELS.**
Murphy's Hotel, Richmond, Va.
Rice Hotel, Houston, Texas.
Southern Hotel, The, Baltimore, Md.
- HOUSE MOVING.**
Eichleay, Jr. Co., John, Pittsburgh.
- HULLS (Steel.)**
American Steel Dredge Co., Fort Wayne, Ind.
- HUMIDIFYING AND DRYING EQUIPMENT.**
Grinnell Co., Inc., Providence, R. I.
Skinner Bros. Mfg. Co., St. Louis, Mo.
- HYDRANTS (Fire.)**
Columbian Iron Works, Chattanooga, Tenn.
Ludlow Valve Mfg. Co., The, Troy, N. Y.
Myers & Bro. Co., The, F. E., Ashland, O.
Vogt Brothers Mfg. Co., Louisville, Ky.
Wood & Co., R. D., Philadelphia, Pa.
- HYDRO - ELECTRIC POWER COMPANIES (Offering Industrial and Commercial Opportunities.)**
Alabama Power Co., Birmingham, Ala.
Central Power & Light Co., San Antonio.
Georgia Power Co., Atlanta, Ga.
Kentucky Utilities Co., Louisville, Ky.
Texas Power & Light Co., Dallas, Texas.
- ICE and Refrigerating Machinery and Supplies.**
Ingersoll-Rand Co., New York, N. Y.
Vogt Mch. Co., Henry, Louisville, Ky.
- INCINERATORS.**
Duplex Hanger Co., Cleveland, Ohio.
Swenson Evaporator Co., Harvey, Ill.
- INCORPORATORS.**
Corporation Service Co., Wilmington, Del.
Delaware Registration Trust Co., Wilmington, Del.
- INDUSTRIAL SURVEYS.**
Technical Service Co., New York, N. Y.
- INJECTORS.**
Jenkins Bros., New York, N. Y.
Randle Machinery Co., The, Cincinnati, O.
- INSULATING MATERIALS.**
Johns-Manville Corp., New York, N. Y.
Okonite Co., New York, N. Y.
- INVESTMENT SECURITIES.**
Electric Bond & Share Co., New York.
Gay & Co., W. O., New York City.
Hanchett Bond Co., Inc., The, Chicago, Ill.
Marx & Co., Birmingham, Ala.
Mercantile Trust Co., Baltimore, Md.
Nuveen & Co., John, Chicago.
Peabody & Co., Chicago.
Provident Savings Bank & Trust Co., Cincinnati, Ohio.
Robinson-Humphrey Co., Atlanta, Ga.
Seasongood & Mayer, Cincinnati, Ohio.
Taylor, Wilson & Co., Inc., Cincinnati, O.
- IRON.**
Tennessee Coal, Iron & Railroad Co., Birmingham, Ala.
- (Ingot, For Culverts, etc.)
American Rolling Mill Co., Middletown, O.
- JOINTS (Pipe.)**
Leadite Co., The, Philadelphia, Pa.
- JOIST HANGERS.**
Duplex Hanger Co., Cleveland, Ohio.

KETTLES (Pavers and Roofers.)

Honhorst Co., Jos., Cincinnati, O.

LADDERS (Rolling.)

Myers & Bro. Co., The F. E., Ashland, O.

—(Wooden.)Dayton Safety Ladder Co., Cincinnati, O.
Patent Scaffolding Co., Chicago, Ill.**LAMPS (Incandescent.)**

General Electric Vapor Lamp Co., Hoboken, N. J.

Western Electric Co., New York City.

LATH (Metal.)

Ingalls Iron Works Co., Birmingham, Ala.

LAWN FURNITURE (Wire.)

Dufur, Baggett & Co., Baltimore, Md.

LIGHTING (Factory and Mill.)

General Electric Vapor Lamp Co., Hoboken, N. J.

—Fixtures (Electric.)

Western Electric Co., New York City.

LIME RECOVERY SYSTEMS.

Swenson Evaporator Co., Harvey, Ill.

LININGS (Flue, Fire Clay.)Lee Clay Products Co., Clearfield, Ky.
Owensboro Sewer Pipe Co., Owensboro, Ky.**—(Tube Mill.)**

Fuller Lehigh Co., Fullerton, Pa.

LINOLEUM (Battleship, Jasp.)

Congoleum-Nairn, Inc., Kearny, N. J.

LITHOGRAPHERS and ENGRAVERS.

Smith & Son Co., Oscar T., Baltimore, Md.

Young & Selden Co., Baltimore, Md.

LOADING and UNLOADING MACHINERY (Portable.)

Barber-Greene Co., Aurora, Ill.

Northwest Engineering Co., Chicago, Ill.

LOCOMOTIVES (Compressed Air.)

Porter Co., H. K., Pittsburgh, Pa.

—(Electric.)

Cincinnati Car Corp. (Locomotive Div.), Cincinnati, Ohio.

—(Fireless Stored Steam.)

Porter Co., H. K., Pittsburgh, Pa.

—(Gasoline.)

Cincinnati Car Corp. (Locomotive Div.), Cincinnati, Ohio.

Porter Co., H. K., Pittsburgh, Pa.

Whitcomb Co., Geo. D., Rochelle, Ill.

—(Industrial.)

Birmingham Rail & Locomotive Co., Birmingham, Ala.

Cincinnati Car Corp. (Locomotive Div.), Cincinnati, Ohio.

Porter Co., H. K., Pittsburgh, Pa.

Southern Iron & Equipment Co., Atlanta, Ga.

Whitcomb Co., Geo. D., Rochelle, Ill.

—(Mining.)

Cincinnati Car Corp. (Locomotive Div.), Cincinnati, Ohio.

Porter Co., H. K., Pittsburgh, Pa.

Whitcomb Co., Geo. D., Rochelle, Ill.

—(Railway.)

Cincinnati Car Corp. (Locomotive Div.), Cincinnati, Ohio.

Porter Co., H. K., Pittsburgh, Pa.

Southern Iron & Equipment Co., Atlanta, Ga.

Whitcomb Co., Geo. D., Rochelle, Ill.

LOGGING MACHINERY.

Clyde Iron Works Sales Co., Duluth, Minn.

LOOM PICK COUNTER

Veeder-Root, Inc., Hartford, Conn.

LUBRICANTS.

Dixon Crucible Co., Jos., Jersey City, N. J.

Gulf Refining Co., Pittsburgh, Pa.

LUBRICATORS (Force Feed.)

Lunkenheimer Co., The, Cincinnati, O.

LUBRICATION SYSTEMS.

Alumite Corp., Chicago, Ill.

LUMBER (Ceiling, Flooring, Siding.)

Industrial Lumber Co., Elizabeth, La.

—(Creosoted.)

Amer. Creosote Wks., Inc., New Orleans, La.

Amer. Creosoting Co., Inc., Louisville, Ky.

Ayer & Lord Tie Co., Inc., Chicago.

Delaware Wood Preserving Co., Phila.

Eppinger & Russell Co., New York, N. Y.

Gulf States Creos. Co., Hattiesburg, Miss.

Pretzman & Sons, J. F., Charleston, S. C.

Savannah Creos. Co., Savannah, Ga.

—(Heavy Construction, Pitch, Pine, etc.)

Industrial Lumber Co., Elizabeth, La.

—(Zinc Meta Arsenite Treated.)

Curtin-Howe Corp., New York City.

MACHINERY (Special.)

Bliss Co., E. W., Brooklyn, N. Y.

Earle Gear & Machine Co., Phila., Pa.

Fernholz Machinery Co., St. Louis, Mo.

General Machine Works, York, Pa.

—and Supplies (New and Used.)

Beatty Machine & Mfg. Co., Hammond, Ind.

Reyes Co., Inc., New York City.

Dempster Equip. Co., Knoxville, Tenn.

Electric Service Co., Cincinnati, Ohio.

Equip. Sales & Rentals Co., Pittsburgh.

Heineken Engineering Corp., New York.

Marine Metal & Supply Co., New York.

Nashville Ind. Corp., Old Hickory, Tenn.

O'Brien Machinery Co., The, Phila., Pa.

Randle Machinery Co., The, Cincinnati, O.

Ryerson & Son, Inc., Jos. T., St. Louis and New York.

Seyfert's Sons, Inc., L. F., Phila., Pa.

Zelnicker Supply Co., W. A., St. Louis.

MACHINE TENDERS (Steel.)

Angle Steel Steel Co., Plainwell, Mich.

—(Tools.)

Ryerson & Son, Inc., Jos. T., St. Louis and New York.

—(Used.)

Delta Equipment Co., Philadelphia, Pa.

O'Brien Machinery Co., Phila., Pa.

MAIL CHUTES.

Cutler Mail Chute Co., Rochester, N. Y.

MARBLE (Producers and Manufacturers.)

Georgia Marble Co., Tate, Ga.

METAL-Cutting Machinery.

Atkins & Co., E. C., Indianapolis, Ind.

Earle Gear & Machine Co., Phila., Pa.

—Working Machinery.

Bliss Co., E. W., Brooklyn, N. Y.

METHANOL (Synthetic Methyl Alcohol.)

Du Pont Ammonia Corp., Wilmington, Del.

MILL MACHINERY and SUPPLIES.

Lombard Iron Works & Supply Co., Augusta, Ga.

MINING MACHINERY.

McLanahan-Stone Machine Co., Hollidaysburg, Pa.

MIXERS (Asphalt.)

Erie Machine Shops, Erie, Pa.

—(Hot.)

Koehring Co., Milwaukee, Wis.

—(Plaster.)

Blystone Mfg. Co., Cambridge Springs, Pa.

Chain Belt Co., Milwaukee, Wis.

Dunning & Bochart Press Co., Syracuse, N. Y.

Jaeger Machine Co., Columbus, Ohio.

MORTAR MIXERS.

Chain Belt Co., Milwaukee, Wis.

Jaeger Machine Co., Columbus, Ohio.

—Ingredient.

Louisville Cement Co., Louisville, Ky.

MOTORS (Electric.)

Fairbanks, Morse & Co., Chicago, Ill.

Howell Electric Motors Co., Howell, Mich.

Western Electric Co., New York City.

Westinghouse Elec. & Mfg. Co., E. Pittsburgh, Pa.

—(Gasoline.)

Wisconsin Motor Co., Milwaukee, Wis.

MOTOR TRUCKS.

International Harvester Co., of America, Inc., Chicago, Ill.

NAILS (Cut.)

Reading Iron Co., Reading, Pa.

—and Spikes.

American Steel & Wire Co., Balto., Md.

Gulf States Steel Co., Birmingham, Ala.

Tennessee Coal, Iron & Railroad Co., Birmingham, Ala.

Youngstown Sheet & Tube Co., Youngstown, Ohio.

NATURAL GAS COMPANIES.

(Offering Industrial and Commercial Opportunities.)

Arkansas Natural Gas Corp., Shreveport, La.

OIL (Fuel and Gas.)

Gulf Refining Co., Pittsburgh, Pa.

—Cups.

Lunkenheimer Co., The, Cincinnati, O.

ORE-WASHING MACHINERY.

Georgia Iron Works, Augusta, Ga.

McLanahan Stone Machine Co., Hollidaysburg, Pa.

ORNAMENTAL BRONZE WORK.

Heath Co., J. S., Waukegan, Ill.

—Iron Work.

Roanoke Iron & Bridge Wks., Roanoke, Va.

Sneed Architectural Iron Works, Louisville, Ky.

Southern Engineering Co., Charlotte, N. C.

Stewart Iron Works Co., Cincinnati, O.

PACKING (Asbestos, Metallic, Rubber, Leather, etc.)

Jenkins Bros., New York, N. Y.

Johns-Manville Corp., New York, N. Y.

Republic Rubber Co., Youngstown, Ohio.

PAINT (Aluminum.)

Aluminum Co. of America, Pittsburgh, Pa.

—(Metal Surfaces.)

Aluminum Co. of America, Pittsburgh, Pa.

Dixon Crucible Co., Jos., Jersey City, N. J.

—(Mill White, For Interior.)

Aluminum Co. of America, Pittsburgh, Pa.

Sonneborn Sons, Inc., L., New York.

—(Preservative.)

Cabot, Inc., Samuel, Boston, Mass.

Foster Co., Benjamin, Philadelphia, Pa.

PANELBOARDS.

Adam Elec. Co., Frank, St. Louis.

PARTITIONS (Metal, Folding, Rolling.)

Klimes Mfg. Co., The, Columbus, Ohio.

Lupton's Sons Co., David, Phila., Pa.

—(Sectionfold, Rolling, Wood.)

Wilson Corp., The, J. G. New York.

PATENT ATTORNEYS.

Buck, Sterling P., Washington, D. C.

Coleman, Watson E., Washington, D. C.

Eaton, Paul B., Charlotte, N. C.

Fasnet, Edward C., Washington, D. C.

Seymour & Bright, Washington, D. C.

PATTERNS (Drawing, etc.)

Haas Pattern Co., A. W., Atlanta, Ga.

PAVING BLOCKS (Creosoted Wood.)

American Creosote Works, New Orleans.

—Blocks (Rubber.)

Servelised Premoulded Products, Inc., Chicago, Ill.

—Mixers (Concrete.)

Koehring Co., Milwaukee, Wis.

—Plant (Asphalt.)

Simplicity System Co., Chattanooga, Tenn.

PENSTOCKS.

Chicago Bridge & Iron Works, Atlanta.

Pittsburgh-Tes Moines Steel Co., Pittsburgh, Pa.

Smith Co., S. Morgan, York, Pa.

PERFORATED METAL.

Chicago Perforating Co., Chicago, Ill.

Erdie Perforating Co., Rochester, N. Y.

Harrington & King Perf. Co., Chicago.

Hendrick Mfg. Co., Carbondale, Pa.

Manhattan Perforated Metal Co., Inc., Long Island City, N. Y.

Mundt & Sons, Charles, Jersey City, N. J.

Northmann-Duffie Co., Milwaukee, Wis.

PETROLEUM REFINERS.

Gulf Refining Co., Pittsburgh, Pa.

PHOSPHATE ACID.

Davison Chemical Co., Baltimore, Md.

—(Machinery.)

McLanahan-Stone Machine Co., Hollidaysburg, Pa.

PIG-IRON.

Hammond Iron Co., Birmingham, Ala.

Remble Iron & Steel Co., Youngstown, Ohio.

Slous-Sheffield Steel & Iron Co., Birmingham, Ala.

Tennessee Coal, Iron & Railroad Co., Birmingham, Ala.

PILE SHOES.

Janney, Jr., Jos. A., Phila., Pa.

PILING (Creosoted.)

Amer. Creosote Wks., Inc., New Orleans.

Amer. Creosoting Co., Inc., Louisville.

Ayer & Lord Tie Co., Inc., Chicago.

Pretzman & Sons, J. F., Charleston, S. C.

Savannah Creosoting Co., Inc., Savannah.

Wales Wood-Preserving Co., Norfolk, Va.

—(Steel Sheet.)

Carnegie Steel Co., Pittsburgh, Pa.

Wemlinger, Inc., New York, N. Y.

Zelnicker Supply Co., W. A., St. Louis.

PIPE.

Albert & Davidson Pipe Corp., Brooklyn, N. Y.

Albert Pipe Sup. Co., Inc., Brooklyn, N. Y.

Birmingham Boiler & Engr. Co., Birmingham, Ala.

Central Pipe & Sup. Co., Charleston, W. Va.

Greenpoint Iron & Pipe Co., Inc., Brooklyn, N. Y.

Hammond Iron Co., Birmingham, Ala.

Hudson Pipe & Sup. Co., Bayonne, N. J.

National Tube Co., Pittsburgh, Pa.

Pittsburgh Piping & Equip. Co., Pittsburgh, Pa.

Power Piping Co., Pittsburgh, Pa.

Smith Corp., A. O., Milwaukee, Wis.

—(Cast Iron.)

Amer. Cast Iron Pipe Co., Birmingham.

Cast Iron Pipe Research Assn., Chicago.

Central Foundry Co., The, New York, N. Y.

Glanorgan Pipe & Fdry. Co., Lynchburg, Va.

National Cast Iron Pipe Co., Birmingham, Ala.

U. S. Pipe & Foundry Co., Burlington, N. J.

—(Dredge.)

Abendroth & Root Mfg. Co., New York.

—(Hammer-Welded.)

National Tube Co., Pittsburgh, Pa.

—(Iron and Steel.)

Ryerson & Son, Inc., Jos. T., St. Louis, and New York.

—(Riveted.)

Abendroth & Root Mfg. Co., New York.

—(Second-Hand.)

Albert & Davidson Pipe Corp., Brooklyn, N. Y.

Albert Pipe Sup. Co., Inc., Brooklyn, N. Y.

Central Pipe & Sup. Co., Charleston, W. Va.

Greenpoint Iron & Pipe Co., Inc., Brooklyn, N. Y.

Hudson Pipe & Supply Co., Bayonne, N. J.

Marine Metal & Supply Co., New York.

—(Spiral Riveted.)

Abendroth & Root Mfg. Co., New York.

Taylor Forge & Pipe Wks., Chicago, Ill.

—(Steel.)

Bethlehem Steel Co., Bethlehem, Pa.

National Tube Co., Pittsburgh, Pa.

Pittsburgh Piping & Equip. Co., Pittsburgh, Pa.

Power Piping Co., Pittsburgh, Pa.

Republic Iron & Steel Co., Youngstown, Ohio.

Smith Corp., A. O., Milwaukee, Wis.

Youngstown Sheet & Tube Co., Youngstown, Ohio.

—(Wrought Iron.)

Reading Iron Co., Reading, Pa.

—Benders and Headers.

Grinnell Co., Inc., Providence, R. I.

—Bending Machines.

American Pipe Bending Machine Co., Boston, Mass

PLATES (Steel.)

Bethlehem Steel Co., Bethlehem, Pa.
Carnegie Steel Co., Pittsburgh, Pa.
Central Iron & Steel Co., Harrisburg, Pa.
Granite City Steel Co., Granite City, Ill.
Ryerson & Son, Inc., Jos. T., St. Louis and New York.
Tennessee Coal, Iron & Railroad Co., Birmingham.

PNEUMATIC TOOLS.

Chicago Pneumatic Tool Co., New York.
Ingersoll-Rand Co., New York, N. Y.

POLES (Creosoted.)

Amer. Creosote Wks., Inc., New Orleans.
Amer. Creosoting Co., Inc., Louisville, Ky.
Ayer & Lord Tie Co., Inc., Chicago.
Pettibone & Sons, J. F., Charleston, S. C.
Savannah Creosoting Co., Savannah, Ga.
Taylor-Clellough Co., Spartanburg, S. C.

(Tubular, Steel.)

National Tube Co., Pittsburgh, Pa.

—(Zinc Meta Arsenite Treated.)
Curtin-Howe Corp., New York City.

POLISHING MACHINERY.

(Wheels, Blocks.)
Carborundum Co., Niagara Falls, N. Y.

PORTABLE HOUSES (Metal.)

Braden Steel Corp., Tulsa, Okla.
Maryland Metal Building Co., Balto., Md.

POST CAPS.

Duplex Hanger Co., Cleveland, Ohio.

POSTS (Cast Iron, Railway and Highway.)

U. S. Pipe & Foundry Co., Burlington, N. J.

POWER TRANSMISSION MACHINERY.

American Pulley Co., Philadelphia, Pa.
Diamond Chain & Mfg. Co., Indianapolis.
Foots Bros. Gear & Machine Co., Chicago.
Golden's Fdry. & Mch. Co., Columbus, Ga.
Morse Chain Co., Ithaca, N. Y.
O'Brien Machinery Co., Phila., Pa.
Schaffeld's Sons Co., J. S., Macon, Ga.
Wood's Sons Co., T. B., Chambersburg, Pa.

(Pumps.)

Luitwieler Pumping Engine Co., Rochester, N. Y.

PREHEATERS (Air.)

Combustion Engr. Corp., New York City.

PRESSES, (Baling, Cottonseed Oil, Hydraulic and Power.)

Dunning & Boschert Press Co., Inc., Syracuse, N. Y.
Ripley Foundry & Machine Co., Ripley, O.
—(Hydraulic Wheel.)
Inter-State Fdry. & Mch. Wks., Johnson City, Tenn.

(Metal Stamping.)

Bliss Co., E. W., Brooklyn, N. Y.

PRINTERS (Book, Catalog, Job.)

Smith & Son Co., Oscar T., Baltimore Md.
Young & Selden Co., Baltimore, Md.

PRODUCER (Gas Machines.)

Gas-O-Flame Store Works, Port Deposit, Md.
Morgan Construction Co., Worcester, Mass.
Wood & Co., E. D., Phila., Pa.

PULLER-JACKS.

Edelblute Co., T. H., Pittsburgh, Pa.

PULLEYS (Friction Clutch.)

Caldwell Co., Inc., W. E., Louisville, Ky.
Schultz & Son, A. L., Chicago, Ill.
Wood's Sons Co., T. B., Chambersburg, Pa.

(Motor and Machine.)

American Pulley Co., Philadelphia, Pa.

(Steel Split.)

American Pulley Co., Phila., Pa.

—Shafting and Hangers.

American Pulley Co., Phila., Pa.
Foots Bros. Gear & Mch. Co., Chicago.
Golden's Fdry. & Mch. Co., Columbus, Ga.
Wood's Sons Co., T. B., Chambersburg, Pa.

PULVERIZED FUEL EQUIPMENT.

Combustion Engr. Corp., New York City.
Fuller Lehigh Co., Fullerton, Pa.

PULVERIZERS (See Crushing and Pulverizing Machinery.)**PUMPING MACHINERY.**

American Well Works, Aurora, Ill.
Cameron, A. S., Steam Pump Works (Ingersoll-Rand Co.), New York City.
Chain Belt Co., Milwaukee, Wis.
Cook, Inc., A. D., Lawrenceburg, Ind.
Fairbanks, Morse & Co., Chicago, Ill.
Ingersoll-Rand Co. (A. S. Cameron Steam Pump Works), New York, N. Y.
Keystone Pump & Drill Co., Beaver Falls, Pa.

Luitwieler Pumping Engine Co., Rochester, N. Y.
Myers & Bro. Co., The F. E., Ashland, Ohio.
Platt Iron Works, Dayton, Ohio.
Viking Pump Co., Cedar Falls, Iowa.
Virginia Mch. & Well Co., Richmond, Va.

PUMPS (Air.)

Manistee Iron Works Co., Manistee, Mich.

—(Air Lift.)

Ingersoll-Rand Co., New York, N. Y.
Sullivan Machinery Co., Chicago, Ill.

—(Boiler Feed.)

Allis-Chalmers Mfg. Co., Milwaukee, Wis.
Cameron, A. S., Steam Pump Works (Ingersoll-Rand Co.), New York City.
DeLaval Steam Turbine Co., Trenton, N. J.
Erie Pump & Engine Wks., Medina, N. Y.
Ingersoll-Rand Co. (A. S. Cameron Steam Pump Works), New York, N. Y.
Manistee Iron Works Co., Manistee, Mich.
Myers & Bro. Co., The F. E., Ashland, O.

—(Centrifugal.)

Allis-Chalmers Mfg. Co., Milwaukee, Wis.
American Well Works, Aurora, Ill.
Cameron, A. S., Steam Pump Works (Ingersoll-Rand Co.), New York City.
DeLaval Steam Turbine Co., Trenton, N. J.
Emerson Pump & Valve Co., Alexandria, Va.
Erie Pump & Engine Wks., Medina, N. Y.
Fairbanks, Morse & Co., Chicago, Ill.
Ingersoll-Rand Co. (A. S. Cameron Steam Pump Works), New York, N. Y.

Jaeger Machine Co., Columbus, Ohio.
Layne & Bowler, Inc., Memphis, Tenn.
Manistee Iron Works Co., Manistee, Mich.
Morris Machine Wks., Baldwinville, N. Y.
Novo Engine Co., Lansing, Mich.

—(Contractors.)

Emerson Pump & Valve Co., Alexandria, Va.
Erie Pump & Engine Wks., Medina, N. Y.
Novo Engine Co., Lansing, Mich.

—(Deep Well.)

American Well Works, Aurora, Ill.
Cook, Inc., A. D., Lawrenceburg, Ind.
Keystone Pump and Drill Co., Beaver Falls, Pa.
Layne & Bowler, Inc., Memphis, Tenn.
Luitwieler Pumping Engine Co., Rochester, N. Y.
Novo Engine Co., Lansing, Mich.

—(Diaphragm.)

Novo Engine Co., Lansing, Mich.

—(Hydraulic.)

Dunning & Boschert Press Co., Inc., Syracuse, N. Y.

—(Power.)

American Well Works, Aurora, Ill.
Platt Iron Works, Dayton, Ohio.
Sterling Engine Co., Buffalo, N. Y.

—(Pulverized Coal.)

Fuller Lehigh Co., Fullerton, Pa.

—(Rotary.)

Viking Pump Co., Cedar Falls, Iowa.

—(Sand and Dredging.)

Ellicott Machine Corp., Baltimore, Md.
Erie Pump & Engine Wks., Medina, N. Y.
Georgia Iron Works, Augusta, Ga.

—(Steam.)

Cameron, A. S., Steam Pump Works (Ingersoll-Rand Co.), New York City.
Emerson Pump & Valve Co., Alexandria, Va.
Fairbanks, Morse & Co., Chicago, Ill.
Ingersoll-Rand Co. (A. S. Cameron Steam Works), New York, N. Y.
Platt Iron Works, Dayton, Ohio.

—(Vacuum.)

Allis-Chalmers Mfg. Co., Milwaukee, Wis.
Chicago Pneumatic Tool Co., New York.
Ingersoll-Rand Co., New York, N. Y.
Sullivan Machinery Co., Chicago, Ill.

—(Water Works.)

American Well Works, Aurora, Ill.
Layne & Bowler, Inc., Memphis, Tenn.
Manistee Iron Works Co., Manistee, Mich.

PUNCHING AND SHEARING MACHINERY.

Beatty Machine & Mfg. Co., Hammond, Ind.
Bliss Co., E. W., Brooklyn, N. Y.
Whitney Metal Tool Co., Rockford, Ill.

RACK RAKES.

Newport News Shipbuilding & Drydock Co., Newport News, Va.

RADIATOR ENCLOSURES.

Manhattan Perforated Metal Co., Inc., Long Island City, N. Y.

RAILINGS (Iron Pipe.)

Pipe Railing Constr. Co., Long Island City, N. Y.

—and Grilles, Iron and Brass, (Banks and Offices.)
Dufur, Baggett & Co., Baltimore, Md.
Ludlow Saylor Wire Co., The St. Louis, Mo.

RAILROAD Equipment and Supplies (New.)

Robinson & Orr, Pittsburgh, Pa.

—Equipment and Supplies**(Used.)**

Birmingham Rail & Loco. Co., Birmingham.
Equip. Sales & Rentals Co., Pittsburgh.
Levis & Co., Henry, Philadelphia, Pa.
Smith & Co., W. M., Birmingham, Ala.
Southern Iron and Equip. Co., Atlanta.
Zelicker Supply Co., W. A., St. Louis.
—(Frogs and Switches.)
Bethlehem Steel Co., Bethlehem, Pa.
Frank, M. K., Pittsburgh, Pa.
Koppel Ind. Car & Equip. Co., Koppel, Pa.
Robinson & Orr, Pittsburgh, Pa.

RAILROADS — (Offering Industrial, Agricultural and Commercial Opportunities.)

Atlanta and West Point R. R., Atlanta.
Central of Georgia Rwy., Savannah, Ga.
Missouri - Kansas - Texas Lines, Dallas, Texas.
Missouri-Pacific Lines, St. Louis, Mo.
Model Land Company, Flagler System, St. Augustine, Fla.
Norfolk & Western Railway, Roanoke, Va.
Tennessee Central Railway, Nashville, Tenn.

RAILS (New and Used.)

Birmingham Rail & Locomotive Co., Birmingham, Ala.
Carnegie Steel Co., Pittsburgh, Pa.
Frank, M. K., Pittsburgh, Pa.
Levis & Co., Henry, Philadelphia, Pa.
Perry, Burton, Doane Co., Philadelphia.
Robinson & Orr, Pittsburgh, Pa.
Smith & Co., W. M., Birmingham, Ala.
Southern Iron & Equip. Co., Atlanta, Ga.
Sweet's Steel Co., Williamsport, Pa.
Tennessee Coal, Iron & Railroad Co., Birmingham, Ala.
Weller & Co., Birmingham, Ala.
Zelicker Supply Co., W. A., St. Louis.

RAILWAYS (Industrial.)

Easton Car & Construction Co., Easton, Pa.
Koppel Ind. Car & Equip. Co., Koppel, Pa.

—(Marine.)

Charleston Dry Dock and Machine Co., Charleston, S. C.

RECEPTACLES (Self-Closing, Waste Paper.)

Whitaker Paper Co., Baltimore, Md.

REELS AND SPOOLS. (Pressed Metal.)

American Pulley Co., Philadelphia, Pa.

REFRACORIES.

Harbison-Walker Refractories Co., Pittsburgh.
Taylor Sons Co., Charles, Cincinnati.

REFRIGERATING Machinery (See Ice and Refrigerating Machinery and Supplies.)**REINFORCING for Concrete.**

American Steel and Wire Co., Balto., Md.
Carnegie Steel Co., Pittsburgh, Pa.
Connors Steel Co., Birmingham, Ala.
Dietrich Brothers, Baltimore, Md.
Gulf States Steel Co., Birmingham, Ala.
Knoxville Iron Co., Knoxville, Tenn.
Pidgeon-Thomas Iron Co., Memphis, Tenn.
Ryerson & Son, Inc., Jos. T., St. Louis and New York.
Southern Engineering Co., Charlotte, N. C.
Truscon Steel Co., Youngstown, O.

RESURFACING MATERIALS

(Floor, Roof and Roadways.)
Stonhard Co., Phila., Pa.

RETORTS (Special Process—

Riveted or Welded.)
Biggs Boiler Works, Akron, Ohio.

RIVER & HARBOR IMPROVEMENTS. (Dredging, Docks,

Wharves, etc.)
Arundel Corp., The, Baltimore, Md.
Atlantic Gulf and Pacific Co., New York.
Kansas City Bridge Co., Kansas City.

RIVETS.

Russell, Burdall & Ward Bolt & Nut Co., Port Chester, N. Y.

ROAD and Street Machinery.

Acme Road Mchry. Co., Frankfort, N. Y.
Adams Co., J. D., Indianapolis, Ind.
Austin-Western Road Mchry. Co., Chicago.
Blaw-Knox Co., Pittsburgh, Pa.
Buffalo-Springfield Roller Co., Springfield, O.
Caterpillar Tractor Co., San Leandro, Cal.
Erie Machine Shops, Erie, Pa.
Huber Mfg. Co., The, Marion, Ohio.
Universal Crane Co., Lorain, Ohio.

—and Street Material.

Bituminous Earth Road Corp., Raleigh, N. C.
Boxley & Co., W. W., Roanoke, Va.
Interstate Amiesite Co., Wilmington, Del.

Kentucky Rock Asphalt Co., Louisville,

Ky.
Sloss-Sheffield Steel and Iron Co., Birmingham, Ala.

Truscon Steel Co., Youngstown, O.
Woodstock Slag Corp., Birmingham, Ala.

—Graders and Scrapers.

Acme Road Mchry. Co., Frankfort, N. Y.
Adams Co., J. D., Indianapolis, Ind.
Austin-Western Road Mchry. Co., Chicago.
Caterpillar Tractor Co., San Leandro, Cal.

—Oils and Preservatives.

Gulf Refining Co., Pittsburgh, Pa.

—Reinforcement (Welded Fabric.)

American Steel & Wire Co., Balto., Md.

—Rollers (Steam and Gasoline.)

Acme Road Mchry. Co., Frankfort, N. Y.
Austin-Western Road Mchry. Co., Chicago.
Buffalo-Springfield Roller Co., Springfield, O.

Erie Machine Shops, Erie, Pa.
Gibson Iron Works & Mfg. Co., Gallon, O.
Huber Mfg. Co., The, Marion, Ohio.

—Rollers (For Concrete Work.)

Macon Concrete Roller Co., Macon, Ga.

—Scarifiers.

Austin-Western Road Mchry. Co., Chicago.
Buffalo-Springfield Roller Co., Springfield, O.

ROOFING (Asphalt, Built-up.)

Barber Asphalt Co., Philadelphia, Pa.

—(Ready Prepared, Felt, Tar, Asbestos, Asphalt.)

Ambler Asbestos Shingle & Sheathing Co., Ambler, Pa.
Barrett Co., The, New York, N. Y.
Eternit, Inc., St. Louis, Mo.
Johns-Manville Corp., New York, N. Y.
Servicised Premoulded Products, Inc., Chicago, Ill.

—and Siding (Composition.)

Eternit, Inc., St. Louis, Mo.
Johns-Manville Corp., New York, N. Y.

—and Siding (Metal.)

American Rolling Mill Co., Middletown, O.
American Sheet and Tin Plate Co., Pittsburgh, Pa.

Moeschl-Edwards Corr. Co., Cincinnati, O.
Pidgeon-Thomas Iron Co., Memphis, Tenn.
Republic Iron & Steel Co., Youngstown, O.
Robertson Co., H. H., Pittsburgh.

Ryerson & Son, Jos. T., St. Louis and New York.

Truscon Steel Co., Youngstown, O.

Youngstown Sheet and Tube Co., Youngstown, O.

—Tile, Cement (Interlocking

Flat, Channel Glass.)
American Cement Tile Mfg. Co., Pittsburgh, Pa.

—Tiles.

Amer. Cement Tile Mfg. Co., Pittsburgh.

ROPE (Manila, Sisal, Hemp, etc.)

Broderick & Bascom Rope Co., St. Louis.

—Drives.

Wood's Sons Co., T. B., Chambersburg, Pa.

RULES (Steel.)

Lufkin Rule Co., Saginaw, Mich.

SAND.

Arundel Corp., Baltimore, Md.

Friend & Co., Inc., Petersburg, Va.

SANITARY Drinking Fountains.

Rundle-Spence Mfg. Co., Milwaukee, Wis.
Taylor Co., Halsey W., Warren, Ohio.

SASH (Industrial.)

Detroit Steel Products Co., Detroit, Mich.
Truscon Steel Co., Youngstown, O.

—(Operating Devices.)

Detroit Steel Products Co., Detroit, Mich.

—(Steel.)

Detroit Steel Products Co., Detroit, Mich.

—(Steel, Basement, Ventilating.)

Detroit Steel Products Co., Detroit, Mich.

SAWMILL Machinery.

Schofield's Sons Co., J. S., Macon, Ga.

SAWS.

Atkins & Co., Inc., E. C., Indianapolis.

—(Cold Metal.)

Earle Gear and Machine Co., Phila., Pa.

—(Hack.)

Atkins & Co., Inc., E. C., Indianapolis.

—(Portable, Electric, Hand.)

Wappat, Incorporated, Pittsburgh, Pa.

SCAFFOLDING (Wooden.)

Patent Scaffolding Co., Chicago, Ill.

SCALES (Industrial, Platform.)

American Kron Scale Co., New York City.

—(Textile.)

American Kron Scale Co., New York City.

SCHOOLS (Correspondence.)

International Correspondence Schools, Scranton, Pa.

SCOOPS (Hand.)

American Mfg. Co., Chattanooga, Tenn.
—Wheeled.
Riddell Co., W. A., Bucyrus, Ohio.

SCRAPERS (Drag and Wheel.)

Adams Co., J. D., Indianapolis, Ind.
Austin-Western Road Mfg. Co., Chicago.
Gallion Iron Works & Mfg. Co., Gallion, O.
Sauerman Bros., Chicago, Ill.

SCRAP IRON AND STEEL.

Hunts Sons, M. J., Philadelphia, Pa.
Perry, Buxton, Doane Co., Philadelphia.
Smith & Co., W. M., Birmingham, Ala.

SCREENING (For Concrete and Road Construction.)

American Limestone Co., Knoxville, Tenn.

SCREENS (Sand, Gravel, Stone, Coal, Ore, etc.)

Chicago Perforating Co., Chicago, Ill.
Erdie Perforating Co., Rochester, N. Y.
Hendrick Mfg. Co., Carbondale, Pa.
Ludlow Saylor Wire Co., The St. Louis, Mo.
McLanahan-Stone Machine Co., Hollidaysburg, Pa.
Mundt & Sons, Charles, Jersey City, N. J.
Northmann-Duffke Co., Milwaukee, Wis.
Stephens-Adams Mfg. Co., Birmingham, Ala.
Sturtevant Mill Co., Boston, Mass.
Universal Crusher Co., Cedar Rapids, Iowa.

SCREW-Machine Products.

Progressive Mfg. Co., Torrington, Conn.

SCREWS (Machine.)

Progressive Mfg. Co., Torrington, Conn.

SEATING (Churches, Schools, Halls, etc.)

Brunswick Seating Works, Lawrenceville, Va.

SEAWALLS.

Shore-Line Builders, Inc., Jacksonville, Fla.

SEPARATORS (Air.)

Sturtevant Mill Co., Boston, Mass.

—(Dust.)

Raymond Bros., Impact Pulv. Co., Chicago.

SEPTIC TANKS.

Kaustine Co., Inc., Perry, N. Y.

SEWAGE Disposal Apparatus.

Kaustine Co., Inc., Perry, N. Y.
Pacific Flush-Tank Co., New York, N. Y.
Chicago, Ill.

SEWER Joint Compounds.

Pacific Flush-Tank Co., New York, N. Y.
Servicised Premoulded Products, Inc., Chicago, Ill.

—Pipe (Vitrified.)

Bannon Pipe Co., Louisville, Ky.
Cambria Clay Products Co., Blackfork, O.
Dee Co., Wm. E., Oak Hill, Ohio.
Lee Clay Products Co., Clearfield, Ky.
Owensboro Sewer Pipe Co., Owensboro, Ky.

SHADES (Offset.)

Hough Shade Corp., Chicago, Ill.

SHAFTING.

Foots Bros., Gear & Mach. Co., Chicago.
Ryerson & Sons, Inc., Jos. T., St. Louis and New York.

—(Cold Rolled.)

Bliss & Laughlin, Inc., Harvey, Ill.

—(Flexible.)

Strand & Co., N. A., Chicago, Ill.

—Material (Tubular.)

National Tube Co., Pittsburgh, Pa.

—(Spined.)

Ohio Gear Co., Cleveland, Ohio.

SHARPENING Stones.

Carborundum Co., Niagara Falls, N. Y.

SHEET Metal Work.

National Blow Pipe & Mfg. Co., Ltd., New Orleans, La.
Skinner Bros. Mfg. Co., St. Louis, Mo.
—Metal Working Machinery.
Bliss Co., E. W., Brooklyn, N. Y.
Whitney Metal Tool Co., Rockford, Ill.
Yoder Co., The, Cleveland, Ohio.

—Steel and Iron.

American Rolling Mill Co., Middletown, O.
American Sheet and Tin Plate Co., Pittsburgh, Pa.
Bethlehem Steel Co., Bethlehem, Pa.
Granite City Steel Co., Granite City, Ill.
Republic Iron & Steel Co., Youngstown, O.
Ryerson & Sons, Inc., Jos. T., St. Louis and New York.
Tennessee Coal, Iron & Railroad Co., Birmingham, Ala.

Youngstown Sheet & Tube Co., Youngstown, O.

SHEETS (Asbestos.)

Ambler Asbestos Shingle & Sheathing Co., Ambler, Pa.
Eternit, Inc., St. Louis, Mo.

SHELVING (Unit.)

Lupton's Sons Co., David, Phila., Pa.

SHINGLES (Asbestos.)

Ambler Asbestos Shingle & Sheathing Co., Ambler, Pa.
Eternit, Inc., St. Louis, Mo.

—(Stain.)

Cabot, Inc., Samuel, Boston, Mass.

SHORES (Self-Locking, Adjustable.)

Roos, Co., H. W., Cincinnati, Ohio.

SHOVELS (Hand.)

American Mfg. Co., Chattanooga, Tenn.
—(Steam, Gas and Electric Power.)
Bucyrus-Erie Co., Erie, Penna.
Harnischfeger Corp., Milwaukee, Wis.
Industrial Brownhoist Corp., Cleveland, O.
Northwest Engineering Co., Chicago, Ill.
Ohio Power Shovel Co., Lima, Ohio.
Thew Shovel Co., The, Lorain, Ohio.
Universal Power Shovel Co., Milwaukee, Wis.

SHUTTERS (Steel.)

Merchant & Evans Co., Philadelphia, Pa.
Peelle Co., The, Brooklyn, N. Y.

—(Steel and Wood Bifolding.)

Kinnear Mfg. Co., The, Columbus, Ohio.

SILICATE OF SODA.

Grasselli Chemical Co., Inc., Birmingham, Ala.

SITES (Agricultural.)

West Palm Beach, City of, West Palm Beach, Fla.

—(Manufacturing.)

Alabama Power Co., Birmingham, Ala.
Arkansas Natural Gas Corp., Shreveport, La.
Atlanta and West Point R. R., Atlanta, Ga.
Atlanta, Ga., Industrial Bureau C. of C. Brown & Co., Chattanooga, Tenn.
Central of Georgia Rwy., Savannah, Ga.
Central Power & Light Co., San Antonio, Galveston City of, Galveston, Texas.
Georgia Power Co., Atlanta, Ga.
Industrial Dallas, Inc., Dallas, Texas.
Jacksonville, City of Jacksonville, Florida.
Kentucky Utilities Co., Louisville, Ky.
Missouri - Kansas - Texas Lines, Dallas, Texas.
Missouri-Pacific Lines, St. Louis, Mo.
Model Land Company, (Flagler System), St. Augustine, Fla.
Norfolk & Western Railway, Roanoke, Va.
Oklahoma City Chamber of Commerce, Oklahoma City, Okla.
Tennessee Central Railway, Nashville, Tenn.
Texas Power & Light Co., Dallas, Texas.

SKYLIGHTS.

Milwaukee Corrugating Co., Milwaukee, Wis.
Robertson Co., H. H., Pittsburgh, Pa.

SLABS (Concrete Floor.)

American Cement Tile Mfg. Co., Pittsburgh, Pa.

—(Concrete Roof.)

American Cement Tile Mfg. Co., Pittsburgh, Pa.

SLAG, For Concrete.

Sloss-Sheffield Steel and Iron Co., Birmingham, Ala.
Woodstock Slag Corp., Birmingham, Ala.
—(Furnace.)
Sloss-Sheffield Steel and Iron Co., Birmingham, Ala.
Woodstock Slag Corp., Birmingham, Ala.

SLINGS (Chain.)

Woodhouse Chain Works, Trenton, N. J.
—(Wire Rope.)
Roehling's Sons Co., John A., Trenton, N. J.

SLUICE GATES AND APPLI-ANCES.

Smith Co., S. Morgan, York, Pa.

SMELTERS.

Svenson Evaporator Co., Harvey, Ill.

SNATCH BLOCKS (For Wire and Manila Rope.)

Patterson Co., W. W., Pittsburgh.

SPADES.

American Mfg. Co., Chattanooga, Tenn.

SPEED REDUCERS.

Earle Gear & Mach. Co., Phila., Pa.
Foots Bros. Gear & Mach. Co., Chicago.

Morse Chain Co., Ithaca, N. Y.
Stephens-Adams Mfg. Co., Birmingham, Ala.

SPIKES, (Railroad, Ship.)

Bethlehem Steel Co., Bethlehem, Pa.
Republic Iron & Steel Co., Youngstown, O.
Sweet's Steel Co., Williamsport, Pa.

SPRINGS (Machinery, Railway, Spiral Steel.)

American Steel & Wire Co., Balto., Md.
Raymond Mfg. Co., Corry, Pa.

—(Wire—All Kinds.)

American Steel & Wire Co., Balto., Md.

SPRINKLERS (Automatic Fire.)

Grinnell Co., Inc., Providence, R. I.

SPROCKETS.

Diamond Chain & Mfg. Co., Indianapolis.
Foots Bros. Gear & Mach. Co., Chicago.
Morse Chain Co., Ithaca, N. Y.

STACKS (Iron and Steel.)

Biggs Boiler Works Co., Akron, Ohio.
Chattanooga Boiler & Tank Co., Chattanooga, Tenn.
Chicago Bridge and Iron Works, Atlanta.
Downing Iron Wks., Downingtown, Pa.
Hammond Iron Works, Warren, Pa.
Ingalls Iron Works Co., Birmingham, Ala.
Lombard Iron Works & Supply Co., Augusta, Ga.
Pittsburgh-Des Moines Steel Co., Pittsburgh, Pa.
Schodde's Sons Co., J. S., Macon, Ga.
U. S. Pipe & Foundry Co., Burlington, N. J.
Virginia Bridge & Iron Co., Roanoke, Va.

STAINS (Shingle, Woodwork.)

Cabot, Inc., Samuel, Boston, Mass.

STAIR Steps (Safety.)

Irving Iron Works Co., Long Is. City, N.Y.

—Treads.

Central Iron & Steel Co., Harrisburg, Pa.

STAMPING (Sheet Metal.)

American Pulley Co., Philadelphia, Pa.
—Steel (All Kinds.)
Commercial Shearing & Stamping Co., Youngstown, Ohio.

STANDPIPES.

Chattanooga Boiler & Tank Co., Chattanooga, Tenn.
Chicago Bridge & Iron Works, Atlanta, Ga.
Hammond Iron Works, Warren, Pa.
Pittsburgh-Des Moines Steel Co., Pittsburgh, Pa.

STATIONERS (Envelopes, Letter and Billheads, etc.)

Smith & Son Co., Oscar T., Baltimore, Md.
Young & Selden Co., Baltimore, Md.

STEAM SHOVELS.

Bucyrus-Erie Co., Erie, Pa.
Thew Shovel Co., The, Lorain, Ohio.

—Specialties.

Jenkins Bros., New York, N. Y.
Lunkenheimer Co., The, Cincinnati, O.
Mueller Co., Decatur, Ill.

—Traps.

Jenkins Bros., New York, N. Y.

STEEL.

Bethlehem Steel Co., Bethlehem, Pa.
Central Iron & Steel Co., Harrisburg, Pa.
Crucible Steel Co., of Amer., New York City.
Dietrich Brothers, Baltimore, Md.
Gulf States Steel Co., Birmingham, Ala.
Republic Iron & Steel Co., Youngstown, O.
Ryerson & Sons, Inc., Jos. T., St. Louis and New York.
Tennessee Coal, Iron & Railroad Co., Birmingham, Ala.
Virginia Bridge & Iron Co., Roanoke, Va.

—(Alloy.)

Crucible Steel Co. of Amer., New York City.
Timken Roller Bearing Co., Canton, Ohio.

—(Cold Drawn.)

Bliss & Laughlin, Inc., Harvey, Ill.

—(Cold Rolled.)

American Steel & Wire Co., Balto., Md.
Bliss & Laughlin, Inc., Harvey, Ill.

—(Information Only.)

American Institute of Steel Construction, Inc., New York City.

—(Liners for Sewers, Tunnels and Caissons.)

Commercial Shearing & Stamping Co., Youngstown, O.

—(Special Analysis.)

Timken Roller Bearing Co., Canton, Ohio.

—(Tool, High Speed.)

Bethlehem Steel Co., Bethlehem, Pa.
Crucible Steel Co. of Amer., New York City.

—Buildings (Designers and Builders.)

American Bridge Co., New York, N. Y.
Belmont Iron Works, Philadelphia, Pa.
Braden Steel Corp., Tulsa, Okla.

Butler Mfg. Co., Kansas City, Mo.

Carolina Steel & Iron Co., Greensboro, N. C.

Champion Bridge Co., Wilmington, O.

Eichleay, Jr., Co., John, Pittsburgh.

Ingalls Iron Works Co., Birmingham, Ala.

McClintic-Marshall Co., Pittsburgh, Pa.

Phoenix Iron Co., The, Phila., Pa.

Pittsburgh-Des Moines Steel Co., Pittsburgh, Pa.

Richmond Struct. Steel Co., Richmond, Va.

Virginia Bridge & Iron Co., Roanoke, Va.

—Forms (Curb, Gutter, Side-walk, Road.)

Blaw-Knox Co., Pittsburgh, Pa.

—Plate Construction (Riveted or Welded.)

Biggs Boiler Works Co., Akron, Ohio.

Birmingham Boiler & Engr. Co., Birmingham, Ala.

Carolina Steel & Iron Co., Greensboro, N. C.

Central Iron & Steel Co., Harrisburg, Pa.

Chattanooga Boiler & Tank Co., Chattanooga, Tenn.

Chicago Bridge & Iron Works, Atlanta, Ga.

Combustion Engr. Corp., New York City.

Hammond Iron Works, Warren, Pa.

Ingalls Iron Works Co., Birmingham, Ala.

Mecklenburg Iron Works, Charlotte, N. C.

Phoenix Iron Co., The, Phila., Pa.

Pittsburgh-Des Moines Steel Co., Pittsburgh, Pa.

—Tank Heads.

Commercial Shearing & Stamping Co., Youngstown, Ohio.

STENCIL CUTTING MACHINES.

Diagram Stencil Machine Corp., St. Louis, Mo.

STOKERS (Mechanical.)

Babcock & Wilcox Co., The, New York.
Combustion Engr. Corp., New York City.

STORAGE Batteries.

Electric Storage Battery Co., Philadelphia.

—Bins (Steel.)

Blaw-Knox Co., Pittsburgh, Pa.

Butler Bin Co., Waukegan, Wis.

STRIPS (Steel.)

American Steel & Wire Co., Baltimore.

STRUCTURAL STEEL (Hot Galvanized.)

Bassemmer Galvanizing Works, Birmingham.

—and Iron.

American Bridge Co., New York, N. Y.

Belmont Iron Works, Philadelphia, Pa.

Carnegie Steel Co., Pittsburgh, Pa.

Carolina Steel & Iron Co., Greensboro, N. C.

Champion Bridge Co., Wilmington, Ohio.

Converse Bridge & Steel Co., Chattanooga, Tenn.

Dietrich Brothers, Baltimore, Md.

Eichleay, Jr. Co., John, Pittsburgh.

Erie Steel Constr. Co., Erie, Pa.

Ingalls Iron Works Co., Birmingham, Ala.

McClintic-Marshall Co., Pittsburgh, Pa.

Nashville Bridge Co., Nashville, Tenn.

Phoenix Iron Co., The, Phila., Pa.

Pidgeon-Thomas Iron Co., Memphis, Tenn.

Pittsburgh-Des Moines Steel Co., Pittsburgh, Pa.

Republic Iron & Steel Co., Youngstown, O.

Richmond Struct. Steel Co., Richmond, Va.

Roanoke Iron & Bridge Works, Inc., Roanoke, Va.

Ryerson & Sons, Inc., Jos. T., St. Louis and New York.

Snead Architectural Iron Works, Louisville, Ky.

Southern Engineering Co., Charlotte, N. C.

Tennessee Coal, Iron & Railroad Co., Birmingham, Ala.

Virginia Bridge & Iron Co., Roanoke, Va.

SULPHATE OF ALUMINA.

Grasselli Chemical Co., Inc., Birmingham, Ala.

SULPHATE PULP MILLS.

Svenson Evaporator Co., Harvey, Ill.

SULPHIDE OF SODA.

Grasselli Chemical Co., Inc., Birmingham, Ala.

SULPHURIC ACID.

Darwin Chemical Co., The, Balto., Md.
Du Pont de Nemours & Co., Inc., E. I., Wilmington, Del.

SUPER-HEATERS (Steam.)

Babcock & Wilcox Co., The, New York.

SURVEYING INSTRUMENTS.

Weber Co., Inc., F., Philadelphia, Pa.

SURVEYORS (Quantity.)

Spring, Charles Herbert, Greensboro, N. C.

SWINGING ENGINES.

Dake Engine Co., Grand Haven, Mich.

SWITCHBOARDS, SWITCHES, ETC.

Adam Elec. Co., Frank, St. Louis.
Westinghouse Elec. & Mfg. Co., E. Pittsburgh, Pa.

SYSTEMS (Business.)

Ernst & Ernst, New York, N. Y.

TACKLE BLOCKS (For Wire and Manila Rope.)

Patterson Co., W. W., Pittsburgh.

TANKS (Air Compressor.)

Air-Tight Steel Tank Co., Pittsburgh, Pa.

Seafie & Sons, Wm. B., Oakmont, Pa.
Titusville Iron Works Co., Titusville, Pa.**—(Elevated Steel.)**Caldwell Co., Inc., W. E., Louisville, Ky.
Chicago Bridge & Iron Works, Atlanta, Ga.
Cole Mfg. Co., R. D., Newnan, Ga.
Pittsburgh-Des Moines Steel Co., Pittsburgh, Pa.

Schofield's Sons Co., J. S., Macon, Ga.

Virginia Bridge & Iron Co., Roanoke, Va.

—(Elevated Wood.)Caldwell Co., Inc., W. E., Louisville, Ky.
Davis & Son, G. M., Palatka, Fla.
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Chicago Bridge & Iron Works, Atlanta, Ga.

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Titusville Iron Works Co., Titusville, Pa.

Virginia Bridge & Iron Co., Roanoke, Va.

Westinghouse Traction Brake Co., Wilmerding, Pa.

—(Seamless Steel.)

Janney, Jr., Jos. A., Phila., Pa.

National Tube Co., Pittsburgh, Pa.

—(Storage, Oil, etc.)

Biggs Boiler Works, Akron, Ohio.

Birmingham Boiler & Engr. Co., Birmingham, Ala.

Chicago Bridge & Iron Works, Atlanta, Ga.

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Ingalls Iron Works Co., Birmingham, Ala.

Mecklenburg Iron Works, Charlotte, N. C.

Pittsburgh-Des Moines Steel Co., Pittsburgh, Pa.

Titusville Iron Works Co., Titusville, Pa.

—(Wood.)

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Davis & Son, G. M., Palatka, Fla.

Virginia Mch. & Well Co., Richmond, Va.

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TIME RECORDERS.

Kaiser Klock Co., L. E., Baltimore, Md.

TIN AND TERNE PLATES.

American Sheet & Tin Plate Co., Pittsburgh, Pa.

Bethlehem Steel Co., Bethlehem, Pa.

Granite City Steel Co., Granite City, Ill.

Youngstown Sheet & Tube Co., Youngstown, Ohio.

TOBACCO MACHINERY.

Ripley Foundry & Machine Co., Ripley, O.

TOILET TISSUE.

Victoria Paper Mills Co., Fulton, N. Y.

TOOLS (Measuring.)

Lufkin Rule Co., Saginaw, Mich.

—(Woodworking—Portable.)

Electric, Hand.)

Wappat, Incorporated, Pittsburgh, Pa.

TORCHES (Blow.)

Wall Mfg. Supply Co., P., Pittsburgh, Pa.

—(Kerosene.)

St. Paul Welding & Mfg. Co., St. Paul, Minn.

TOWERS (Electric Transmission.)

American Bridge Co., New York, N. Y.

Bessemer Galvanizing Works, Birmingham, Ala.

Nashville Bridge Co., Nashville, Tenn.

—(Radio.)

Bessemer Galv. Wks., Birmingham, Ala.

—(Steel and Wood.)

Chattanooga Boiler & Tank Co., Chattanooga, Tenn.

Cole Mfg. Co., R. D., Newnan, Ga.

TRACK (Portable or Permanent.)

Sweet's Steel Co., Williamsport, Pa.

TRACTORS (Industrial.)

Atlas Car & Mfg. Co., The, Cleveland, O.

Caterpillar Tractor Co., San Leandro, Cal.

Clark Tractor Co., Battle Creek, Mich.

Cleveland Tractor Co., Cleveland, Ohio.

International Harvester Co., of America, Inc., Chicago, Ill.

—(Road.)

Caterpillar Tractor Co., San Leandro, Cal.

Cleveland Tractor Co., Cleveland, Ohio.

—Attachments (Side Boom.)

W-K-M Co., Inc., Houston, Texas.

TRAILERS. (Four Wheel.)

Electric Wheel Co., Quincy, Ill.

—(Heavy Duty.)

Electric Wheel Co., Quincy, Ill.

—(Industrial.)

Easton Car & Construction Co., Easton, Pa.

Electric Wheel Co., Quincy, Ill.

—(Pole.)

Electric Wheel Co., Quincy, Ill.

TRAMWAYS (Aerial Wire Rope.)

American Steel & Wire Co., Balto., Md.

Broderick & Bascom Rope Co., St. Louis, Mo.

Lechen & Sons Rope Co., A., St. Louis, Mo.

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—(Motor.)

International Harvester Co., of America, Inc., Chicago, Ill.

—(Platform, Freight, Mill, Factory, etc.)

American Pulley Co., Philadelphia, Pa.

Clark Tractor Co., Battle Creek, Mich.

Electric Wheel Co., Quincy, Ill.

Nutting Truck Co., Chicago, Ill.

Service Caster & Truck Co., Albion, Mich.

Trucon Steel Co., (Pressed Steel Division) Cleveland, Ohio.

—(Steel Shop.)

Angle Steel Shop Co., Plainwell, Mich.

TUBES (Boiler.) See Boiler Tubes.**TUBING (Metal.)**

Boiler Tube Co., of America, Pittsburgh.

—(Seamless Steel.)

National Tube Co., Pittsburgh, Pa.

Timken Rolling Bearing Co., Canton, O.

TURBINES (Hydraulic.)

Cook, Inc., A. D., Lawrenceburg, Ind.

Lefel & Co., The, James, Springfield, O.

Smith Co., S. Morgan, York, Pa.

—(Steam.)

Allis-Chalmers Mfg. Co., Milwaukee, Wis.

DeLaval Steam Turbine Co., Trenton, N. J.

Westinghouse Elec. & Mfg. Co., E. Pittsburgh, Pa.

TURNBUCKLES.

Russell, Burdall & Ward Bolt & Nut Co., Port Chester, N. Y.

TUENTABLES.

American Bridge Co., New York, N. Y.

Easton Car & Construction Co., Easton, Pa.

Virginia Bridge & Iron Co., Roanoke, Va.

—(Portable for Motor Trucks.)

Blaw-Knox Co., Pittsburgh, Pa.

UNIONS.

Dart Mfg. Co., E. M., Providence, R. I.

UNIT HEATERS.

Grinnell Co., Inc., Providence, R. I.

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Before you invest, consider Water Works Securities



WHEN you have funds to invest, do not fail to consider water works securities. When your community votes on a bond issue to provide funds for water works development or extensions, vote *Yes* and buy some of the bonds when issued.

By investing in water works securities you will be aiding the government's efforts to stimulate public works projects and you will be putting your money in an absolutely essential industry. Everybody must use water.

Not only is the demand for water constant and sure, but the capital expenditure for equipment to supply the demand is safely and economically invested. The principal expenditure in a water works project is for underground mains. Cast iron pipe is almost invariably used for water mains and cast iron pipe lasts for a century or more.

Investors are usually taxpayers. It is to the advantage of both to have cast iron pipe used when a water main installation is put down in the community. For cast iron is the longest lived and most economical material that is practicable for underground mains. Water and gas mains of ferrous metal (iron and steel) with the exception of cast iron, disintegrate from rust. Cast-iron pipe is the *only* ferrous



metal pipe practicable for underground mains that rust will not destroy.

Consult your banker regarding water works securities of municipalities or utility companies. And when you see water mains being laid, look for the "Q-check" trade mark which identifies cast iron pipe made by the leading pipe founders listed in this advertisement.

Investors, taxpayers, city officials and engineers who desire information regarding pipe for water, gas, sewers, road culverts and industrial needs, are

From a sparkling lake 17 miles away, a cast iron pipe line conveys water to a New England city. Water works securities provide funds for installing or extending water supply systems, and the chief expenditure is for cast iron pipe which lasts a century. When the securities are retired, usually in 30 years, the pipe line is paid for and good for generations of service. Consult your banker about investments in this indispensable industry.



invited to write to The Cast Iron Pipe Research Association, Thomas F. Wolfe, Research Engineer, 122 South Michigan Avenue, Chicago.

* * *

Cast iron pipe bearing the "Q-check" trade mark is obtainable from the following leading pipe founders: Alabama Pipe Company, Anniston, Ala.; American Cast Iron Pipe Company, Birmingham, Ala.; James B. Clow & Sons, 219 N. Talman Avenue, Chicago, Ill.; Donaldson Iron Company, Emaus, Pa.; Glamorgan Pipe and Foundry Company, Lynchburg, Va.; Lynchburg Foundry Company, Lynchburg, Va.; National Cast Iron Pipe Company, Birmingham, Ala.; United States Pipe and Foundry Company, Burlington, N. J.; Warren Foundry and Pipe Company, 11 Broadway, New York.

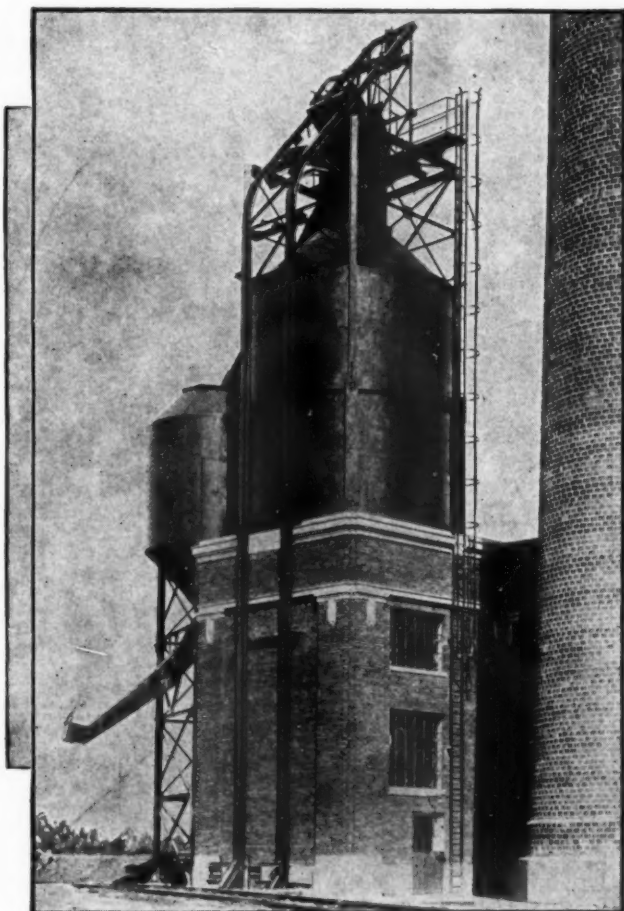
Look for the "Q-check" symbol stenciled in white as shown below. It is the registered trade mark of The Cast Iron Pipe Research Association and identifies Cast Iron Pipe made by the leading pipe founders listed in this advertisement.



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The above page advertisement of The Cast Iron Pipe Research Association will appear in Time, April 7th—Collier's, April 19th—Saturday Evening Post, May 3rd. Total circulation over five million.

Skip Hoist by Beaumont .. bearings by Hyatt

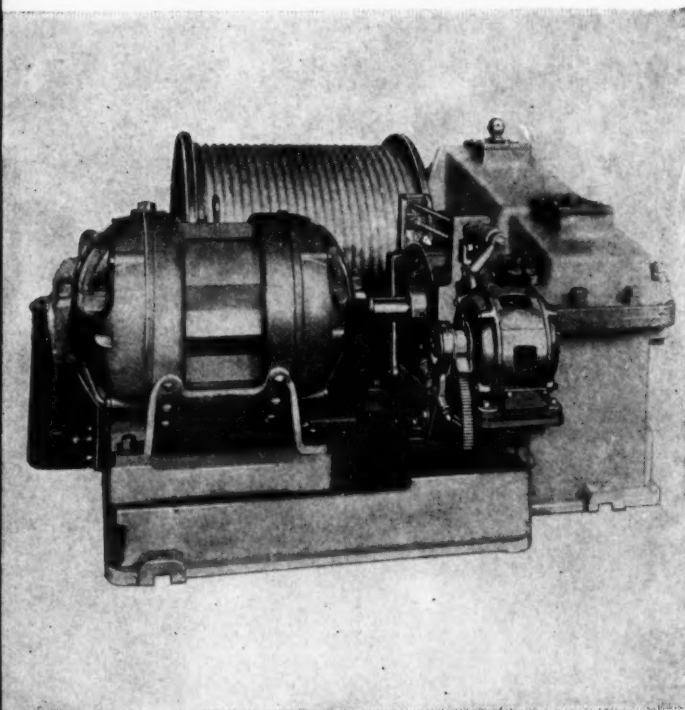


All electric, full automatic skip hoist built by R. H. Beaumont Company, Philadelphia ... installed at the Bendix Brake Corporation, South Bend, Ind.



At all bearing positions in the Beaumont skip hoist, sturdy Hyatts operate with no perceptible friction or wear, while carrying out their appointed duties of saving power, cutting maintenance and lubrication needs, avoiding replacement delays, and adding many extra years of flawless bearing performance.

The inherent ruggedness of Hyatt Roller Bearings withstands the stress of frequent starts and stops. By diminishing friction, Hyatts also prevent jerky operation, loads are handled easily at all times.



Complete protection to a variety of material handling equipment . . . cranes, electric hoists, trucks, trailers, tractors, etc. . . has led a majority of manufacturers, like Beaumont, to employ Hyatt Roller Bearings exclusively.

To specify Hyatts is to guard your products permanently against bearing distress.

HYATT ROLLER BEARING COMPANY
NEWARK DETROIT CHICAGO PITTSBURGH OAKLAND

HYATT

ROLLER BEARINGS

PRODUCT OF GENERAL MOTORS

1 yd. LORAIN 55



A 1 yd. excavating and material handling machine built to the greatest specification a shovel or crane can have—Thew Center Drive.

- A shovel that digs deeper below the treads, dumps higher and farther out than any other shovel of equal length boom and dipper stick.
- A crane that simultaneously hoists, swings, travels with independent control of each operation.



- Mounted on 2 Speed Center Drive Crawler, famous because of low maintenance cost.— Easily extended to longer "64" and "68" tread crawlers with lower ground pressures for crane, clamshell or dragline service.
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